Western Refining Southwest LLC
A subsidiary of Marathon Petroleum Corporation
I-40 Exit 39
Jamestown, NM 87347

February 27, 2024

Mr. Ricardo Maestas, Acting Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505-6313

RE: Response to Second Disapproval
Rail Car Loading Area Release Soil Sampling Investigation Report
Western Refining Southwest LLC, D/B/A/ Marathon Gallup Refinery
EPA ID# NMD000333211
HWB-WRG-21-026

Dear Mr. Maestas:

Western Refining Southwest LLC (D/B/A Marathon Gallup Refinery) is submitting this response to disapproval contained in the New Mexico Environment Department (NMED) *Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report* letter dated April 25, 2022. A timeline of the report is as follows:

- Investigation Report, submitted December 12, 2021
- *Disapproval*, received April 25, 2022
- Response to disapproval submitted November 30, 2022
- *Second disapproval,* received November 2, 2023

The response to comments is provided in Attachment A. This submittal includes two hard copies of the report and a CD with an electronic copy of the redlined report and the revised report (Attachment B).

If you have any questions or comments regarding the information contained herein, please do not hesitate to contact Mr. John Moore at (505) 879-7643 or Ms. Kateri Luka at (714) 713-1218.

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Certification

I certify under penalty of law that this document and all attachments were prepared under my direction of supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,
Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery

Timothy J. Peterkoski
Director, Environmental Auditing & Processes
Marathon Petroleum Company LP

Enclosures

cc: N. Dhawan, NMED HWB
L. Tsinnajinnie, NMED HWB
M. Suzuki, NMED HWB
L. Andress, NMED HWB
L. Barr, NMOCD
L. King, EPA Region 6
M. Bracey, Marathon Petroleum Corporation
K. Luka, Marathon Petroleum Corporation
J. Moore, Marathon Gallup Refinery
H. Jones, Trihydro

ATTACHMENT A

RESPONSE TO COMMENTS

New Mexico Environment Department (NMED) to Western Refining Southwest LLC (Western) Comment Letter
"Disapproval, Railcar Loading Area Release Soil Sampling Investigation Report" (November 2, 2023)

NMED Comment	Western Response
Comment 1:	**Response 1:**
In the response to NMED's Disapproval Comment 1, the Permittee states, "[t]he combination of the less contaminant mass, faster transport, rates, and high degradation potential suggest that shorter longevity in the vadose zone is a reasonable assumption. Therefore, it follows that soils overlying the smear zone may not require an interim response for the purpose of protecting groundwater. The Refinery proposes to conduct a holistic migration to groundwater analysis on a site-wide basis." Address the following: a) The analysis of contaminant migration from vadose zone to groundwater must be conducted in a site-specific manner (e.g., per each AOC/SWMU) because severity of contamination and the contaminants of concern (COCs) are specific to each AOC and SWMU. Revise the Report accordingly. b) Because the contamination associated with metals and semi-volatile organic compounds (SVOCs) are often associated with rail tracks, metals and SVOCs may potentially be the COCs in the Rail Car Loading Area. Metals and SVOCs are more recalcitrant than volatile organic compounds (VOCs) and the statement may not apply to them. The groundwater beneath the vadose zone must be protected from all potential COCs. However, if the groundwater has already been contaminated with the same COCs that are detected in the vadose zone, soils overlying the smear zone (i.e., vadose zone) will not require an interim response for the purpose of protecting groundwater. Evaluate potential risk for migration of contaminants from soil to groundwater (i.e., comparison of DAF SSLs/SL-SSLs against soil concentrations) in the revised Report.	a) The Refinery acknowledges that the analysis of contaminant migration from the vadose zone to groundwater must be specific to each Area of Concern and Solid Waste Management Unit and the report has been revised. Please see Response 1c below for the requested evaluation. b) The Refinery respectfully disagrees contamination often associated with rail tracks, such as SVOC's and metals, needs to be further evaluated in this investigation. The purpose of this investigation was to identify impacts from known historical hydrocarbon releases. Contamination often associated with rail tracks will be evaluated in the Revised Area of Concern 17 - Railroad Track Investigation Work Plan (renamed at the request of NMED). The Refinery acknowledges the need to evaluate the risk for migration of contaminants from soil to groundwater. Please see response 1c below for this evaluation. c) This comment is acknowledged. The Refinery completed an evaluation of the potential risk for migration of contaminants from soil to groundwater. A step-wise approach was completed to evaluate the New Mexico Environment Department (NMED) dilution attenuation factor (DAF) soil screening levels (SSLs). The Refinery evaluated the analytical soil data to determine which detected constituents exceeded their respective DAF SSLs (Table 6). Nearby wells were then compared to the NMED groundwater screening levels for those identified constituents (Table 7). A lines-of-evidence process (Table 8) was completed with the identified

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NMED Comment	Western Response
c) In order to evaluate the potential risk above, provide a table(s) that lists (i) soil sample designations, (ii) detected constituents and their concentrations in the soil samples, (iii) respective DAF SSLs from the detected constituents, (vi) maximum detected groundwater concentrations of the respective constituents in nearby well(s) (e.g., RW-01, OW-58), and (v) respective groundwater screening levels (SLs) for the constituents in the revised Report. Based on the data presented in the table(s), discuss whether or not an interim response to mitigate the risk is warranted in the revised Report.	constituents and evaluated whether an interim response is necessary. The report has been revised in Section 3.7, page 15 of 17, to state, "[s]amples with detected results were also compared against the NMED dilution attenuation factor (DAF) SSLs. An evaluation was conducted to determine whether an interim response is required to protect the migration of contaminants that exceeded the NMED DAF SSL from the vadose zone to groundwater. The evaluation was performed by creating data tables (Table 6 and Table 7) which are used in Table 8 in a lines-of-evidence evaluation to determine whether an interim response is needed. Table 6 shows soil sample analytical data of detected constituents that exceeded the NMED Construction DAF 20 SSLs and Table 7 shows groundwater analytical data compared to the 2022 NMED Groundwater Cleanup Levels with exceedances of the same constituents identified in Table 6 from nearby wells (OW-58, OW-58A, and RW-01). Based on the lines-of-evidence evaluation presented in Table 8, the Refinery does not believe that an interim response is required for the purpose of protecting contaminant migration to groundwater because all but three of the constituents with DAF SSL exceedances have had groundwater screening level exceedances in nearby wells. The three constituents with DAF SSL exceedances not found in nearby wells, have maximum detections within one order of magnitude or less than the DAF SSL."

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NMED Comment	Western Response
Comment 2:	**Response 2:**
In the response to NMED's Disapproval Comment 1, the Permittee states, "Tables 2 through 5 were compared to NMED Residential, Industrial, and Construction Worker SSLs. Non-detect reporting limit exceedances are noted with an asterisk (*) on Tables 2 through 5." According to Table 2 (Volatile Organic Compounds), asterisk marks are noted for some soil concentrations for 2-hexanone and 2-butanone (e.g., Location ID: RCR-SB-1); however, the reporting limits of these analytes do not exceed the respective soil screening levels (SSLs). Resolve the discrepancy in the revised Report.	This comment is acknowledged. Tables 2 through 5 have been reviewed and discrepancies found have been corrected. Revised Tables 2 through 5 are included with this report.
Comment 3:	**Response 3:**

In the response to NMED's Disapproval Comment 2, the Permittee states, "[i]t should be noted that none of the VOC, SVOC, or metals exceedances were detected results. However, several sample locations had elevated reporting limits and those reporting limits exceeded their respective NMED Industrial, Residential, and/or Construction Worker SSLs for the constituents noted below:
• VOCs:
  ○ 1,2-Dibromo-3-chloropropane
  ○ 1,2,3-Trichloropropane
• SVOCs:
  ○ Bis(2-chloroethyl)ether
  ○ 2-Chlorophenol
  ○ 3,3'-Dichlorobenzidine
  ○ 2,4-Dichlorophenol
  ○ 2,4-Dinitrophenol
  ○ 2,4-Dinitrotoluene
  ○ 2,6-Dinitrotoluene
	Given the matrix interference due to the elevated levels of target analytes, any laboratory would be required to dilute the sample prior to analysis. Additionally, non-detected (ND) results correlated with boring locations RCR-SB-1, RCR-SB-2, RCR-SB-4, and RCR-SB-6 and surface sample locations RCR-SS-3, RCR-SS-8, and RCR-SS-9 are located within the proposed excavation extent and would be removed. The Refinery will propose to resample locations RCR-SS-1, RCR-SS-2, RCR-SS-5, RCR-SS-10, and RCR-SS-11 in the Phase II Investigation Work Plan for analysis to determine if lower detection limits can be achieved. The proposed excavation extent in the Phase II Investigation Work Plan will include borings RCR-SB-3 and RCR-SB-5, and location RCR-SS-7 to remove soil that may contain constituents exceeding the applicable screening levels.

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NMED Comment	Western Response
○ Hexachlorobenzene ○ Hexachlorobutadiene ○ Hexachlorocyclopentadiene ○ Hexachloroethane ○ Nitrobenzene ○ N-Nitrosodimethylamine ○ Pentachlorophenol ○ 1,2,4-Trichlorobenzene ○ 2,4,6-Trichlorophenol ○ Bis(2-ethylhexyl)phthalate • Metals: ○ Arsenic • General chemistry analytes: ○ TPH-DRO ○ TPH-GRO ○ TPH-ORO" The Permittee listed the constituents whose limits of quantitation (LOQs) exceeded the respective screening levels as data quality exceptions in the Report, which is appropriate. However, it is impossible to demonstrate whether the constituents are absent or present at concentrations above the applicable screening levels when LOQs exceed the respective screening levels. The Permittee uses Hall Environmental Services for laboratory analyses; however, it is possible that other laboratories may be able to provide lower LOQs for some constituents. Evaluate such possibilities and provide a discussion regarding other labs' testing capacities in the revised Report.	

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NMED Comment	Western Response
Comment 4:	**Response 4:**
In the response to NMED's Disapproval Comment 3, the Permittee states, "[t]he Refinery respectfully disagrees that delineation has not been met and believes the data of this report have near full lateral and horizontal delineation of contamination as a result of the railcar release. As stated in the report, laboratory analytical results obtained from confirmation samples will ultimately guide the extent of excavation [and b]ased on the analytical data and field observations collected to date, the impacted area will be excavated to the extent existing infrastructure allows." Address the following: a) As stated in NMED's Disapproval Comment 10, several issues were identified regarding the proposed extent of excavation because the extent of soil contamination was not fully delineated during the investigation. Inadequate investigation regarding the extent of soil contamination may leave contamination behind and therefore the result of remediation may be incomplete. Although the Permittee asserts that the soil contamination was fully delineated, such assertion was not supported by the data provided in the Report. It is important to understand that delineation is achieved when the nature and extent of contamination is defined. While the Permittee has made efforts to determine the current boundaries of remediation, the horizontal and vertical extent of hydrocarbon impacts of the investigation area have not been fully established. Provide the data that supports the assertion in the revised Report or propose to submit a second phase investigation work plan to delineate the extent of contamination, where applicable, as required by NMED's Disapproval Comment 10. The Permittee states, "laboratory analytical results obtained from confirmation samples will ultimately	a) Please see Response 10 regarding the submission of Phase II Investigation Work Plan. The Refinery proposes to extend the excavation boundaries until soil concentrations in floor and sidewall confirmation samples are below the applicable screening levels in the Phase II Investigation Work Plan which will be submitted by May 1, 2024 in an effort to get these investigations completed in 2024 as it has been 4 years since the release and Marathon would like to address the release. b) Please see Response 10 regarding the submission of Phase II Investigation Work Plan. The Phase II Investigation Work Plan will provide discussion specific to excavation as applicable. c) The Refinery had a typo in the Disapproval, Response to Comments dated November 30, 2022, regarding lateral and horizontal delineation. NMED is correct in that the Refinery should have stated "vertical and horizontal delineation." In regards to NMED Comment 3 in the Disapproval, Response to Comments dated November 30, 2022, discussion regarding excavation plan and procedure will be included in the Phase II Investigation Work Plan to extend the excavation boundaries both vertically and horizontally until floor and wall confirmation sampling shows that soil concentrations are below Industrial and Construction Worker SSL exceedances. If confirmation sampling shows that residential exceedances persist, then the

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NMED Comment	Western Response
guide the extent of excavation." Discuss the additional activities necessary for the complete delineation and/or amount of additional soil to be excavated to eliminate residual contamination detected in the confirmation samples collected from the excavation floor and/or sidewall in the second phase investigation work plan. b) The second phase investigation work plan must include details of the excavation. Include a discussion specific to the excavation (e.g., source of backfill materials) in the second phase investigation work plan, as applicable. c) Regarding the terminology "lateral and horizontal" in the Permittee's statement, it is not clear whether the Permittee meant to state "vertical and horizontal". Provide a clarification in the response letter. Clarify the statement in the revised Report, as appropriate.	Refinery will implement institutional controls to mitigate the risks to residential receptors.
Comment 5:	**Response 5:**
In the response to NMED's Disapproval Comment 3, the Permittee states, "[f]loor and wall confirmation samples will be collected and analyzed for TPH-DRO and TPH-GRO." The analytical suite for confirmation samples must be consistent with that of the soil samples collected during the investigation. Propose to analyze the confirmation samples for TPH-DRO, TPH-GRO, TPH-ORO, VOCs, SVOCs, and metals in the second phase investigation work plan.	The Refinery will propose to analyze confirmation soil sampling in the Phase II Investigation Work Plan for TPH-DRO, TPH-GRO, TPH-ORO, VOCs, SVOCs, and metals. Executive Summary, page 3 of 17, paragraph 2, has been revised to state, "[f]loor and wall confirmation samples will be collected and analyzed for the same analytical suite as this investigation." Additionally, Section 4.0, page 16 of 17, paragraph 2 has been revised to say, "[t]he proposed analytical suite for floor and wall confirmation samples will be same as collected for this investigation and discussed in the Phase II IWP."

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NMED Comment	Western Response
Comment 6:	**Response 6:**
In the response to NMED's Disapproval Comment 5, the Permittee states, "[t]he Refinery plans to install this soil boring and collect samples in accordance with the approved Work Plan during second quarter 2023, pending NMED approval of this Report." NMED's Disapproval Comment 5 states, "NMED recommends that the soil boring be installed before or after monsoon season when heavy rain events are expected to occur due to the potential issue associated with stormwater runoff in the area." Since the second quarter of 2023 has already passed and the Report was disapproved, the proposed installation of the soil boring in the northern stormwater culvert must be included in the second phase investigation work plan. Acknowledge this provision in the revised Report.	Section 2.3 (Deviations from Approved Plan), page 11 of 17, last bullet, has been revised to state, "[t]he Refinery will include the installation of this soil boring in the Phase II Investigation Work Plan (IWP) that will be submitted to NMED by May 1, 2024." Additionally, Section 4, page 16 of 17, paragraph 1, has been revised to state, "[o]ne soil boring will be installed at a later date, which will be included in the Phase II IWP that will be submitted to NMED by May 1, 2024."
Comment 7:	**Response 7:**
In the response to NMED's Disapproval Comment 6, the Permittee states, "[i]t should be noted that the Refinery is an industrial site; therefore, NMED Residential SSL exceedances will not be used to determine remediation efforts." The Permittee is reminded that remediation and delineation are not the same. Delineation is achieved when the nature and extent of contamination is defined. While the Permittee has made efforts to determine the current boundaries of remediation, the horizontal and vertical extent of hydrocarbon impacts of the investigation area have not been established. If the Permittee does not demonstrate that the soil concentrations are below the residential SSLs in confirmation samples, institutional controls must be implemented to manage residual risks at the site. Acknowledge this provision in the revised Report. See also Comment 4a above.	The Refinery will propose to extend the excavation boundaries both vertically and horizontally until floor and wall confirmation sampling shows that soil concentrations are below Industrial and Construction Worker SSL exceedances in the Phase II Investigation Work Plan. If confirmation sampling shows that residential exceedances persist, then the Refinery will implement institutional controls to mitigate the risks to residential receptors. Executive Summary, page 3 of 17, first paragraph, has been revised to state, "[t]he Refinery is an industrial site and acknowledges that if sampling shows that residential exceedances persist, then the Refinery will implement institutional controls to mitigate the risks to residential receptors."

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NMED Comment	Western Response
Comment 8:	**Response 8:**
In the response to NMED's Disapproval Comment 10a, the Permittee states, "[l]aboratory wall confirmation samples at the boundary of the excavation will ultimately guide the extent of the excavation. Figure 4 has been expanded to include the entirety of RCR-SB-4." Although Figure 4 (Propose Excavation Extent) includes soil sample location RCR-SB-4 within the boundary of the proposed excavation extend, NMED's Disapproval Comment 10a was not addressed by the Permittee's statement. Comment 10a states, "[s]ince soil borings west of RCR-SB-4 were not advanced to delineate the lateral extent of the TPH-DRO contamination beyond the first area, it is not possible to determine the extent of the western boundary of the excavation. Therefore, the lateral extent of TPH-DRO contamination in the first area has not been defined." In the revised Report, propose to delineate the western extent of the RCR-SB-4 contamination or extend the excavation boundary west of boring RCR-SB-4 until soil concentrations in the confirmation samples are below applicable soil screening levels in the second phase investigation work plan.	The Refinery proposes to extend the excavation boundary west of boring RCR-SB-4 until soil concentrations in confirmation samples are below the applicable screening levels in the Phase II Investigation Work Plan. Section 4.0, page 16 of 17, first paragraph, now states, "[b]ased on the results of the investigation, the Refinery will propose to extend the excavation boundaries west of RCR-SB-4 […] until soil concentrations in floor and sidewall confirmation sampling shows that soil concentrations are below the applicable screening levels in the Phase II IWP." Additionally, Figure 4 has been deleted as it did not include the full extent of the excavation boundaries.

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NMED Comment	Western Response
Comment 9:	**Response 9:**
In the response to NMED's Disapproval Comment 10b, the Permittee states, "[t]he Refinery agrees that the analytical result for TPH-DRO at RCR-SB-5 at a depth of 5 ft bgs (1,200 mg/kg) exceeds the Residential SSL (1,000 mg/kg). However, this analytical result does not exceed Construction Worker or Industrial SSLs of 3,000 mg/kg. The Refinery is an industrial site. As such, remediation should be based on Industrial and Construction Worker SSL exceedances. Therefore, the Refinery respectfully disagrees that delineation was not met." If the Permittee is not able to demonstrate that the soil concentrations are below the residential SSLs in confirmation samples, the Permittee must implement institutional controls to manage residual risk at the site. Acknowledge this provision in the revised Report (see also Comments 4a and 7 above).	The Refinery acknowledges that if confirmation sampling shows cleanup has been achieved to meet Industrial and Construction Worker SSLs, but not Residential SSLs, that appropriate controls will be required to be in place to maintain the site as an industrial site and manage residual risk. In the Executive Summary, page 3 of 17, first paragraph, has been revised to state, "[t]he Refinery is an industrial site and acknowledges that if sampling shows that residential exceedances persist, then the Refinery will implement institutional controls to mitigate the risks to residential receptors." In addition, based on Comment 10b from NMED's April 25, 2022 disapproval, the Refinery proposes to extend the excavation boundary north of boring RCR-SB-5 until soil concentrations in confirmation samples are below the applicable screening levels in the Phase II Investigation Work Plan. Section 4.0, page 16 of 17, first paragraph, now states, "[b]ased on the results of the investigation, the Refinery will propose to extend the excavation boundaries […] north of RCR-SB-5 […] until soil concentrations in floor and sidewall confirmation sampling shows that soil concentrations are below the applicable screening levels in the Phase II IWP."

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NMED Comment	Western Response
Comment 10:	**Response 10:**
In the response to NMED's Disapproval Comment 10c, the Permittee states, "[t]he Refinery is indefinitely idled. The rail tracks are not currently operational but may return to operational status in the future. The Refinery plans to submit an investigation work plan for Area of Concern 17 - Railroad Loading/Unloading Facility in early 2023, which will include borings on the east side of the tracks, across from RCR-SB-6." NMED acknowledges that the work plan, dated January 10, 2023, was received on January 12, 2023. However, the referenced work plan (January 2023 Work Plan) is not acceptable as replacement of the second phase investigation work plan because the comments included in this letter have not been addressed in the January 2023 Work Plan. In addition, the January 2023 Work Plan is inadequate as a work plan to investigate the extent of potential contamination along the railroad tracks. The purpose of the January 2023 Work Plan should have been aligned with Comment 10c of NMED's April 25, 2022 Disapproval. The second phase investigation work plan that addresses all applicable comments in this letter must be submitted separately as a standalone document.	The Refinery acknowledges this comment, and an extension request was submitted on November 27, 2023. An approval notification was received on November 28, 2023. The Rail Car Loading Area Release Soil Sampling Investigation Work Plan Phase II will be submitted to NMED by May 1, 2024.

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NMED Comment	Western Response
Comment 11:	**Response 11:**
In the response to NMED's Disapproval Comment 10d, the Permittee states, "[t]he concluding sentence in NMED Comment 10(d) is not clear, as it is not a complete sentence." To clarify, the concluding sentence is to state, "[s]ince soil borings north of RCR-SB-2, south of RCR-SB-1, and east and west of RCR-SB-1 and RCR-SB-2 were not advanced to delineate the extent of TPH-DRO contamination, the Permittee must propose a second phase investigation work plan to delineate the extent of contamination." Alternatively, propose to extend the excavation boundaries of borings RCR-SB-1 and RCR-SB-2 until soil concentrations in the confirmation samples are below applicable soil screening levels in the second phase investigation work plan. As directed in several comments in this letter, the second phase investigation work plan must be submitted for NMED's review upon receipt of this letter or submit a formal request for extension to submit the second phase investigation work plan to NMED for approval, as appropriate.	The Refinery acknowledges the clarification of the concluding sentence in NMED Comment 10(d). As stated in Response 10, an extension request was submitted on November 27, 2023. An approval notification was received on November 28, 2023. The Rail Car Loading Area Release Soil Sampling Investigation Work Plan Phase II will be submitted to NMED by May 1, 2024, which will propose to extend the excavation boundaries of RCR-SB-1 and RCR-SB-2 until soil concentrations in confirmation samples are below the applicable screening levels. Section 4.0, page 16 of 17, first paragraph, now states, "[b]ased on the results of the investigation, the Refinery will propose to extend the excavation boundaries […] north of RCR-SB-2, south of RCR-SB-1, and east and west of RCR-SB1 and RCR-SB-2 until soil concentrations in floor and sidewall confirmation sampling shows that soil concentrations are below the applicable screening levels in the Phase II IWP."

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NMED Comment	Western Response
Comment 12:	**Response 12:**
In the response to NMED's Disapproval Comment l0d, the Permittee states, "[t]he samples collected between 2.5 ft bgs and 8 ft bgs are lower than the Residential SSL, ranging from 470 mg/kg to 770 mg/kg. This indicates there is a separation between the impact at 2.5 ft bgs and impact at 8 ft bgs." According to Figure 3 (TPH-DRO and TPH-GRO Sample Results), the Permittee's observation is correct. However, neither the subsequent discussion regarding this observation was provided, nor NMED's Disapproval Comment l0d was addressed. Provide the requested discussion regarding the observation in the revised Report.	The Refinery believes that the impact at 2.5 ft bgs resulted from the hydrocarbon releases in 2017 and 2019 and the impacts at 8 ft bgs are related to other historic refinery activities. Cleanup of the hydrocarbon releases outlined in the Approved Rail Car Loading Area Release Soil Sampling Investigation Work Plan dated June 2021 are the focus of this investigation. Any shallow surface contamination exceeding the applicable screening levels indicated in floor and/or sidewall confirmation sampling will be excavated as necessary to below the applicable screening levels as stated in the revised investigation report. If confirmation sampling shows that residential exceedances persist, then the Refinery will implement institutional controls to mitigate the risks to residential receptors. Deeper impacts associated with historical Refinery operations along the railroad tracks will be further investigated in the Revised Area of Concern 17 – Railroad Track Investigation Work Plan as directed in NMED's Comment 1, Disapproval, Area of Concern 17 – Railroad Loading/Unloading Facility Investigation Work Plan, dated February 8, 2023.

New Mexico Environment Department (NMED) to Western Refining Southwest LLC (Western) Comment Letter
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NMED Comment	Western Response
Comment 13:	**Response 13:**
In the response to NMED's Disapproval Comment l0d, the Permittee states, "the Refinery is an industrial site, and as such, remediation should be based on Industrial SSL and Construction Worker SSL exceedances. Therefore, the Refinery respectfully disagrees that TPH-DRO at RCR-SB-1 was not vertically delineated, as there are no Construction Worker SSL exceedances deeper than 2.5 ft bgs." If the Permittee does not demonstrate that the soil concentrations are below the residential SSLs in confirmation samples, the Permittee must implement institutional controls to manage residual risk at the site. Acknowledge this provision in the revised Report (see Comments 4a, 7, and 9 above). Note that the TPH-DRO concentration in the sample collected at sampling location RCR-SB-1 from a depth of two (2) feet bgs is recorded as 3,300 mg/kg and exceeds the Construction Work SSL. Accordingly, the horizontal extent of contamination in the vicinity of RCR-SB-1 toward south, east, and west is not delineated. Submit the second phase investigation work plan to delineate the extent of contamination or propose to extend the excavation boundaries of the boring until soil concentrations in the confirmation samples are below applicable soil screening levels.	The Refinery acknowledges that if confirmation sampling shows cleanup has been achieved to meet Industrial and Construction Worker SSLs, but not Residential SSLs, that appropriate controls will be in place to maintain the site as an industrial site and manage residual risk. Please see Response 10 regarding the submission of the Phase II Investigation Work Plan which will propose to extend the excavation boundaries until soil concentrations in confirmation samples are below the applicable screening levels. In the Executive Summary, page 3 of 17, first paragraph, has been revised to state, "[t]he Refinery is an industrial site and acknowledges that if sampling shows that residential exceedances persist, then the Refinery will implement institutional controls to mitigate the risks to residential receptors."

New Mexico Environment Department (NMED) to Western Refining Southwest LLC (Western) Comment Letter
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NMED Comment	Western Response
Comment 14:	**Response 14:**
In the response to NMED's Disapproval Comment l0d, the Permittee states, "[t]here is a magnitude decrease between the RCR-SB-2 (2 ft bgs) and RCR-SB-1(2.5 ft bgs) and another one- to two-magnitude decrease in DRO concentrations from RCR-SB-1 to RCR-SS-7, RCR-SS-8, and RCR-SS-9." Although the depths and the highest concentrations of TPH-DRO recorded for sampling locations RCR-SB-2 and RCR-SB-1 are comparable (i.e., two (2) feet bgs for 24,000 mg/kg to 2.5 feet bgs for 3,300 mg/kg), these soil concentrations are not comparable to the depths of the soil samples collected at sampling locations RCR-SS-7, RCR-SS-8, and RCR-SS-9 which are reported as 0.5 feet bgs and 1.0 feet bgs. However, the TPH-DRO concentrations in the surface soil samples collected from sampling locations RCR-SB-2 and RCR-SB-1 are recorded as less than the residential SSL and resemble those of RCR-SS-7, RCR-SS-8, and RCR-SS-9. The TPH-DRO concentrations must be evaluated with comparable depths for each sampling location or this discussion must be removed from the Permittee's response. Revise the Report accordingly.	The Refinery agrees that TPH-DRO concentrations must be evaluated with comparable depths for each sampling location. In the previous Response to NMED's Comment 10d from the Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report dated April 25, 2022, the Refinery did not propose to add this comparison to the Investigation Report, therefore no revisions to the report were required.

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NMED Comment	Western Response
Comment 15:	**Response 15:**
In the response to NMED's Disapproval Comment l0d, the Permittee states, "[b]ecause visual and olfactory observations, PID readings and confirmation sampling will be conducted as part of the excavation process, Western believes the impact extent of the railcar release area has been adequately delineated to move forward with excavation in second quarter of 2023." The extent of excavation must be determined by the results of confirmation sampling rather than visual and olfactory observations, and PID readings. In addition, the extent of excavation must be guided by the extent of contamination delineated from the investigation. Since the extent of contamination was not properly defined, the Permittee must propose to submit the second phase investigation work plan to delineate the extent of contamination in the revised Report. The second phase investigation work plan must also include details of the procedure for confirmation sampling and excavation, as applicable. See also Comment 4b above.	Please see Response 10 regarding the submission of Phase II Investigation Work Plan which will propose to extend the excavation boundaries until soil concentrations in confirmation samples are below the applicable screening levels and the procedure for confirmation sampling and excavation activities as applicable. Section 4.0, page 16 of 17, paragraph 2, states, "[a]dditionally, details of the procedure for confirmation sampling and excavation will be included in the Phase II IWP."

New Mexico Environment Department (NMED) to Western Refining Southwest LLC (Western) Comment Letter
"Disapproval, Railcar Loading Area Release Soil Sampling Investigation Report" (November 2, 2023)

NMED Comment	Western Response
Comment 16:	**Response 16:**
In the response to NMED's Disapproval Comment 11, the Permittee states, "[a]dditionally, the Refinery will submit an investigation work plan to NMED in early 2023 that proposes an investigation into Area of Concern 17 - Railroad Loading/Unloading Facility." The January 2023 Work Plan does not address the comments included in this letter. Provide the second phase investigation work plan that addresses all applicable comments in this letter. See also Comment 10 above. The Permittee was initially required to submit the second phase investigation work plan to NMED by April 28, 2023. Accordingly, the Permittee must submit the required document upon receipt of this letter or request an extension, in accordance with Permit Section I J. 12, for the second phase investigation work plan. The Permittee must propose a submittal due date for the second phase investigation work plan in the extension request, as applicable.	As stated in Response 10, an extension request was submitted on November 27, 2023. An approval notification was received on November 28, 2023. The Rail Car Loading Area Release Soil Sampling Investigation Work Plan Phase II will be submitted to NMED by May 1, 2024.

ATTACHMENT B

(PLEASE SEE ATTACHED CD)

ELECTRONIC RED-LINE/STRIKE-OUT REPORT

~~*DRAFT FOR REVIEW*~~

WESTERN REFINING SOUTHWEST LLC

D/B/A MARATHON GALLUP REFINERY

RAIL CAR LOADING AREA RELEASE SOIL

SAMPLING INVESTIGATION REPORT

DECEMBER 12, 2021

REVISED DECEMBER 31, 2022

REVISED FEBRUARY 28, 2024

Executive Summary

Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery (Refinery), is submitting this investigation report for sampling of soils at the rail car loading area to evaluate if hydrocarbon impacts exist in the area. The sampling was conducted to determine if additional investigation or soil excavation would be necessary following historical releases. The sampling took place during the weeks of August 9, 2021 and August 16, 2021. Sampling was conducted in accordance with an approved revised work plan submitted to the New Mexico Environment Department (NMED) on April 30, 2021 (MPC 2021) and approved by NMED on June 15, 2021 (NMED 2021).

On May 7, 2017, a hydrocarbon spill was discovered pooling underneath the pipe rack located along the west side of the rail car loading area (see Section 1.1, Figure 2). An estimated 8,900 gallons of recovered gasoline were placed in a slop tank. At that time, no soil confirmation samples were collected. The on-site laboratory analyzed one release sample, which verified that the released product was gasoline. In an effort to remove impacts, approximately 153 tons of impacted soils were excavated from beneath the pipe rack in November 2018 (MPC 2020).

On March 13, 2019, diesel was discovered leaking in the rail car loading area due to a connection failure on the diesel filter pot. Diesel leaked across the railroad tracks into a culvert carrying product into the stormwater ditch (see Section 2.1, Figure 2). An estimated 42 barrels ~~was~~ were released; 40 barrels were recovered via vacuum truck and 2 barrels were not recovered.

The August 2021 investigation field work consisted of:

- Collection of surface soil samples within the gasoline release and diesel release areas
- Installation of soil borings to observe visual impacts, collection of photoionization detector (PID) readings, and collection of soil samples from the borings.
- Collection of equipment blanks and blind duplicates at a rate of 10 percent.

The soil surface samples were collected using a hand auger and hand trowels, and soil borings were completed with a Geoprobe direct push rig. All samples were analyzed for total petroleum hydrocarbons (TPH)– diesel range organics (DRO), TPH – gasoline range organics (GRO), TPH – oil range organics (ORO), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total metals, and mercury. The results were compared with NMED Industrial, Construction Worker, and Residential Soil Screening Levels (SSLs), dated November 2021. Toxicity Characteristic Leaching Procedure was deemed not necessary, based on the total metals results. Detected NMED Residential SSLs exceedances were identified for the following analytes:

- SVOCs by Selected Ion Monitoring (SIM)
    - Benzo(a)pyrene
    - Dibenzo(a,h)anthracene
    - Naphthalene

The Refinery is an industrial site and ~~; therefore~~acknowledges~~,~~ that ~~NMED Residential SSLs exceedances will not be used in determining remediation efforts.~~if sampling shows that residential exceedances persist, then the Refinery will implement institutional controls to mitigate the risks to residential receptors. It should be noted that none of the VOC, SVOC, or metals exceedances were detected results. However, several sample locations had elevated reporting limits and those reporting limits exceeded their respective NMED Industrial, Construction Worker, and/or Residential SSLs for the constituents noted below:

- VOCs
  - 1,2-Dibromo-3-chloropropane
  - 1,2,3-Trichloropropane
- SVOCs:
  - Bis(2-chloroethyl)ether
  - Bis (2-ethylhexyl)phthalate
  - 2-Chlorophenol
  - 3,3'-Dicholorobenzidine
  - 2,4-Dichlorophenol
  - 2,4-Dinitrophenol
  - 2,4-Dinitrotoluene
  - 2,6-Dinitrotoluene
  - 1,2,4-Trichlorobenzene
  - Hexachlorobenzene
  - Hexachlorobutadiene
  - Hexachlorocyclopentadiene
  - Hexachloroethane
  - Nitrobenzene
  - N-Nitrosodimethylamine
  - 2,4,6-Trichlorophenol
  - Pentachlorophenol
- Metals:
  - Arsenic
- General chemistry analytes:
  - TPH-DRO
  - TPH-GRO
  - TPH-ORO

Based on the analytical data and field observations collected to date, ~~the impacted area will be excavated to the extent that existing infrastructure allows~~a Phase II Investigation Work Plan (IWP) will be composed to guide the next steps of this investigation. ~~.~~ ~~PID field screening and l~~Laboratory confirmation sampling will be proposed for use in the Phase II IWP to extend the excavation boundaries until ~~used during excavation to confirm that all impacted~~ soil~~s~~ concentrations are below the applicable screening levels.~~ associated with the railcar release have been removed.~~ Floor and wall confirmation samples will be collected and analyzed for ~~TPH-DRO and TPH-GRO~~the same analytical suite as this investigation.~~ Wall confirmation samples will be collected every 250 feet~~

~~along the excavation perimeter and six floor samples will be collected.~~ The Phase II IWP ~~sample results~~ will be submitted to NMED ~~in a subsequent report 120 days after the receipt of analytical data.~~by May 1, 2024.

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List of ~~Attachments~~Appendices

A. Boring Logs

B. Laboratory Analytical Reports

C. Data Validation Report

List of Acronyms

~~AOC~~	~~Area of Concern~~
bgs	below ground surface
~~BTEX~~	~~benzene, ethylbenzene, toluene, and xylene~~
DAF	dilution attenuation factor
DRO	diesel range organics
ft	foot or feet
GRO	gasoline range organics
HP	Hydraulic Profiling
IWP	Investigation Work Plan
LIF	Laser-induced Fluorescence
NMED	New Mexico Environment Department
ORO	oil range organics
PID	photoionization detector
ppm	parts per million
Refinery	Marathon Gallup Refinery
SIM	selected ion monitoring
SSL	Soil Screening Level
SVOC	semivolatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
Trihydro	Trihydro Corporation
VOC	volatile organic compounds

1.0 Introduction

Western Refining Southwest LLC (D/B/A Marathon Gallup Refinery [Refinery]) is submitting this investigation report for the sampling of soils at the rail car loading area for hydrocarbon impacts due to historical releases. The sampling was conducted to determine if additional investigation or soil excavation is necessary. The sampling took place during the weeks of August 9, 2021 and August 16, 2021. Sampling was conducted in accordance with the approved revised work plan submitted to the New Mexico Environment Department (NMED) on April 30, 2021 (MPC 2021) and approved by NMED on June 15, 2021 (NMED 2021).

1.1 Background

The Refinery is located approximately 17 miles east of Gallup, McKinley County, New Mexico along the north side of Interstate Highway I-40 (Figure 1). The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Refinery property covers approximately 810 acres and is currently indefinitely idled.

As detailed in "Response Action Report, DGS 105 Additive Tank – Rail Car Loading Area – Gasoline Release" (MPC 2020), approximately 8,900 gallons of gasoline were released under the rail car loading rack on May 7, 2017. In November 2018, approximately 153 tons of petroleum-impacted soils beneath the pipe rack were excavated to a depth of 18 inches below ground surface (bgs) (MPC 2020). Based on the analytical data from the excavation, the release was not anticipated to extend further into the subsurface. However, soil confirmation samples were not collected, and this assumption was not confirmed. On March 13, 2019, an estimated 1,765 gallons of diesel were released in the same area. Of the 42 barrels (1,765 gallons) released, approximately 40 barrels (1,680 gallons) were recovered via vacuum truck.

1.2 Historic Sampling and Results

Prior sampling around the Rail Car Loading area was conducted during the 2019 Laser-induced Fluorescence (LIF)/Hydraulic Profiling (HP) Investigation. LIF borings EB-LIF-12, EB-LIF-13, EB-LIF-14 are located near the Rail Car Loading area. Boring EB-LIF-12 showed a response indicative of gasoline, EB-LIF-13 showed a response indicative of diesel, and EB-LIF-14 did not have a response indicative of a specific hydrocarbon product. More information on the LIF/HP Investigation can be found in the "Tank 570 and Additional Areas Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report," submitted to NMED on October 28, 2021.

1.3 Sampling Activities Per the Approved Work Plan

A revised Work Plan (MPC 2021) was submitted and approved by the NMED in June 2021 (NMED 2021), and consisted of the following major elements:

- Collect soil samples within the gasoline release excavation area
- Install soil borings to observe impacts, collect photoionization detector (PID) readings for evidence of impacts, and collect soil samples from the borings at the surface and then at 2.5-foot (ft) intervals until 8 ft bgs.

- Analysis of samples using field screening with a PID, and submission of laboratory samples for analysis of total petroleum hydrocarbons (TPH) – diesel range organics (DRO) by Method 8015M/D, TPH - gasoline range organics (GRO) by Method 8015D, TPH – oil range organics (ORO) by Method 8015, volatile organic compounds (VOCs) by Method 8260B/1311, semivolatile organic compounds (SVOCs) by Method 8270/8270SIM, total metals by Method 6020, and mercury by Method 7471.
- Analysis of Toxicity Characteristic Leaching Procedure (TCLP) metals by Method 6010B, if deemed necessary based on total metals results.
- Duplicate samples and equipment blanks for the purpose of quality assurance.
- Analytical results comparison against NMED Residential and Industrial Soil Screening Levels (SSLs) (NMED 2019).

2.0 Field Investigation Results

Trihydro Corporation (Trihydro) conducted field activities and sampling during the weeks of August 9, and August 16, 2021. The samples were collected from 17 locations, including 6 soil borings and 11 surface soil sample locations. Boring sample depths ranged from surface to 8 ft bgs. The samples were generally collected in the locations presented in the Work Plan (MPC 2021) but deviated slightly based on the conditions observed in the rail car loading area during the sampling, as discussed in Section 2.3.

2.1 Summary of Field Sampling Activities

A total of 54 samples plus 7 duplicate samples, and 7 equipment blanks~~, and 3 trip blanks~~ were collected from the release area in August 2021. Both surface soil samples and soil samples from borings were collected. Additionally, PID readings were collected in the field from all soil borings. Sample locations are shown on Figure 2.

Surface soil samples were collected using a hand trowel or hand auger. Surface samples were taken at 11 different locations within the known diesel and gasoline release area. At each location, a sample was collected at 6 inches bgs and 1 ft bgs.

Soil borings were installed at six different locations surrounding the known diesel and gasoline release areas. A Geoprobe was used to complete the borings. Field samples were collected at 1 ft intervals starting at the surface through to the total boring depth. These samples were placed in a Ziploc® bag and allowed to warm to 70 degrees Fahrenheit. The headspace was measured for petroleum hydrocarbons with a PID and recorded on the boring logs. All PID readings collected are shown on Table 1. Similarly, analytical samples from the borings were collected first at the surface, and then at 2.5-ft intervals to the total boring depth of 8 ft bgs. An additional sample was collected if signs of contamination (i.e., the highest PID reading) was recorded outside the proposed sampling interval of every 2.5 ft. Total depth was achieved at five of the soil borings; one boring was completed at 3 ft bgs due to encountering a concrete pad.

All soils obtained for analysis were also visually inspected and classified in the field, in general accordance with American Society for Testing and Materials D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils) by a field geologist. All observations were recorded in boring logs (Attachment A). The samples were placed in laboratory provided sample containers, labeled, and placed in a cooler containing a trip blank, iced, and delivered to Hall Environmental Laboratories for analysis for TPH-DRO by Method 8015M/D, TPH-GRO by Method 8015D, TPH-ORO by Method 8015, VOCs by Methods 8260B and 1311, SVOCs by Methods 8270 and 8270SIM, total metals by Method 6020, and mercury by Method 7471.

2.2 Field Observations

This investigation focused on three impacted areas, shown in red and green on Figure 2. The first area is west of the rail car loading area. Impacts from gasoline and diesel releases were presumed to be present in this area. The second area is east of the rail car loading area. Diesel release impacts were presumed to be present in this area, as the diesel spill that occurred in the first area was able to travel east via a stormwater culvert. The third

area is north of the second area, as a stormwater conveyance ditch allowed diesel from the same spill to travel into this third area.

Four soil borings (RCR-SB-3, RCR-SB-4, RCR-SB-5, and RCR-SB-6) were installed around the first area. Soils in these borings were visually impacted from hydrocarbons, as a smear zone was present, and accompanied by a hydrocarbon smell. Six surface soil sample locations (RCR-SS1 through RCR-SS6) were also collected from around or within this first area. A hydrocarbon odor was noted from the soil samples.

Two soil borings (RCR-SB-1 and RCR-SB-2) and three surface soil sample locations (RCR-SS7, RCR-SS8, and RCR-SS9) were installed in the second area. A hydrocarbon smell was noted throughout RCR-SB-1, with hydrocarbon staining towards the bottom of the boring. Pockets of tar were observed in soil boring RCR-SB-2.

Two surface soil samples (RCR-SS10 and RCR-SS11) were collected from the third area. No soil borings were installed in this area, as summarized in Section 2.3. Both surface soil samples were noted to be all reddish-brown clay with no hydrocarbon odor and no hydrocarbon staining.

Completed soil boring logs can be referenced in Attachment A.

2.3 Deviations from Approved Plan

Deviations from the sampling plan approved by NMED (NMED 2021) included the following:

- Completion of RCR-SB-6:
  - Per the approved Work Plan, soil borings were to be completed to a depth of 8 ft bgs. RCR-SB-6 was only completed to a depth of 3 ft bgs, due to a concrete pad encountered at 3 ft bgs. Samples from RCR-SB-6 were collected in accordance with the Work Plan.
- Completion of a soil boring in the third area:
  - Per the approved Work Plan, a soil boring was to be completed to a depth of 8 ft bgs in the northern stormwater culvert. However, field work was conducted during a period of heavy rains, and stormwater runoff from the eastern side of the Refinery collected in this stormwater culvert. As such, the approved proposed soil boring location was under approximately 3 to 4 ft of water. Several attempts were made to drain this stormwater culvert, but afternoon rains refilled the culvert. Additionally, the mud in this area made it impossible to position the drill rig safely. Due to these circumstances, this soil boring was not ~~collected~~completed. The Refinery will include the installation of this soil boring ~~plan~~in the Phase II Investigation Work Plan (IWP) that will be submitted to NMED by May 1, 2024.~~s to install this soil boring and collect samples in accordance with the approved Work Plan during second quarter 2023, pending NMED approval of this Report. An addendum to this Report summarizing field observations and analytical results of this soil boring, will be provided to NMED 90 days after receipt of analytical data.~~

- Analysis of mercury by Method 7470:
    - Per the approved Work Plan, samples were to be analyzed for mercury by Method 7470. However, Method 7470 is the method for groundwater analysis. Method 7471 is the method for soil analysis. Because all samples collected during this investigation were soil samples, the samples were analyzed for mercury by Method 7471.

3.0 Laboratory Analytical Results

Results of the various parameters with applicable standards are presented in the following tables:

- Table 2 – VOCs
- Table 3A – SVOCs
- Table 3B – SVOCs by Selected Ion Monitoring analysis
- Table 4 – Metals
- Table 5 – General Chemistry

Tables 2 through 5 were compared to NMED Residential, Industrial, and Construction Worker SSLs. Non-detect reporting limit exceedances are noted with an asterisk (*) on Tables 2 through 5. Analytical laboratory reports are included in Attachment B. Results for TPH-DRO and TPH-GRO are shown on Figure 3.

3.1 VOCs

The sample results of VOCs compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Table 2. No Industrial or Construction Worker SSL exceedances were identified for VOCs. Residential SSL exceedances were identified for two VOCs, but these exceedances are data quality exceptions in which the reporting limit of a non-detect result is greater than the applicable SSL. The two VOCs with Residential SSL exceedances are:

- 1,2-Dibromo-3-chloropropane
- 1,2,3-Trichloropropane

3.2 SVOCs

The sample results of SVOCs compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Tables 3A and 3B. Reporting limits exceedances of Residential, Industrial, and/or Construction Worker SSLs were identified for 20 SVOCs, but most exceedances are for non-detect results. The 17 non-detect SVOCs are:

- Bis(2-chloroethyl)ether
- 2-Chlorophenol
- 3,3'-Dichlorobenzidine
- 2,4-Dichlorophenol
- 2,4-Dinitrophenol
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Nitrobenzene

- N-Nitrosodimethylamine
- Pentachlorophenol
- 1,2,4-Trichlorobenzene
- ~~1~~2,4,6-Trichlorophenol
- Bis(2-ethylhexyl)phthalate

The Residential SSL reporting limit exceedances for the 3 SVOCs by SIM analysis are:

- Benzo(a)pyrene
- Dibenzo(a,h)anthracene
- Naphthalene

It should be noted that several of the samples where reporting limits exceeded NMED Residential, Industrial, or Construction Worker SSLs required dilution for analysis due to elevated target and/or non-target analytes, as indicated by TPH-DRO, TPH-GRO, and/or TPH-ORO results. For example, RCR-SB-6 (3 ft) has a dilution factor of 50 and RCR-SB-2 (2ft) has a dilution factor of 100 for SVOC analysis. This dilution caused the SVOC reporting limits on some samples to be elevated. Therefore, this dilution may be a contributing factor in the number of non-detect, reporting limit exceedances identified for SVOCs.

3.3 Metals

The sample results of metals compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Table 4. No Industrial or Construction Worker SSL exceedances were identified for metals. Residential SSL exceedances were identified for total arsenic, but these exceedances are data quality exceptions in which the reporting limit of a non-detect result is greater than the applicable SSL.

The analysis performed on the samples collected for this investigation was total constituent analysis, not TCLP. TCLP analysis is typically performed for characterization of waste prior to disposal for purposes of hazardous waste characterization. Total constituent analysis is sometimes performed in lieu of the TCLP analysis, by multiplying the TCLP standard by 20 to compare to the results of the total constituent analysis. The TCLP standards multiplied by 20 are presented in Table 4, for comparison to the analytical results. There were no analytes with concentrations (detected or non-detected) that exceeded the TCLP standards multiplied by 20. As such, TCLP analysis was deemed not necessary, in accordance with the approved Work Plan. The final characterization of the material can be determined during waste profiling.

3.4 General Chemistry

The sample results for general chemistry analytes compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Table 5. Industrial SSL exceedances were identified for TPH-DRO, TPH-GRO, and TPH-ORO.

3.5 QA/QC Samples

Three methanol blank samples were provided by the laboratory as trip blanks. These samples were sent in the coolers by the laboratory and were not altered between sampling and analysis. There were no analytes detected in the trip blank samples.

Tier II data validation was performed on the data package provided by the laboratory. The Tier II data validation included a review of the completeness of the data packages, chain of custody forms, sample condition receipts, sample preservations, holding times, the case narrative, and the quality control summary. Several data points were assigned data qualifiers during Tier II data validation indicating one or more results are an estimated concentration ("J"), an estimated concentration but may be biased low ("J-"), an estimated concentration but may be biased high ("J+"), an estimated reporting limit ("UJ"), or evaluated to be undetected at the reporting limit ("U"). No data points were rejected and the data completeness for this data set is 100 percent acceptable. A Tier II data validation report is presented in Attachment C.

3.6 Correlation of Analytical Results with PID Field Screening

PID results were compared to the TPH results collected from the same sample. PID results are included in Table 1 and TPH results are included in Table 5. Results indicate a potential positive correlation between elevated PID readings (i.e., greater than or equal to 100 parts per million[ppm]) and Industrial SSL exceedances identified for TPH-DRO, TPH-GRO, and TPH-ORO. There is also potential positive correlation between the PID readings, analytical results, and soil characteristics observed in the field. Therefore, the Phase II IWP will propose to collect PID readings ~~and~~ in addition to laboratory confirmation samples. ~~will be collected during excavation to confirm that hydrocarbon-impacted soil has been excavated from the rail car loading area, along with visual indicators.~~

3.7 Analytical Results Summary

Of the 5~~3~~4 samples, ~~46~~ 39 samples had non-detect SVOC results that exceeded their respective Industrial or Construction Worker SSLs, and ~~11~~ 8 samples had TPH results that exceeded their respective Industrial or Construction Worker SSLs. Results also indicate a positive correlation between elevated PID readings and TPH exceedances. The data presented in Section 3.0 will be used to ~~determine proposed excavation extents~~compose the Phase II IWP. ~~Additionally, PID field screening and laboratory confirmation sampling will be used during excavation to confirm that all impacted soils have been removed.~~

Samples with detected results were also compared against the NMED dilution attenuation factor (DAF) SSLs. An evaluation was conducted to determine whether an interim response is required to protect the migration of contaminants that exceeded the NMED DAF SSL from the vadose zone to groundwater. The evaluation was performed by creating ~~new~~data tables (Table 6 and Table 7) used in Table 8 in a lines-of-evidence evaluation to determine whether an interim response is needed. Table 6 shows soil sample analytical data of detected constituents that exceeded the NMED Construction DAF 20 SSLs and Table 7 shows groundwater analytical data compared to the 2022 NMED groundwater Cleanup Levels with exceedances of the same constituents identified in Table 6 from nearby wells (OW-58, OW-58A, and RW-01). Based on the lines-of-evidence evaluation presented in Table 8, the Refinery does not believe that an interim response is required for the purpose of protecting contaminant migration to groundwater because all but three of the constituents with DAF SSL exceedances have had groundwater screening level exceedances in nearby wells. The three constituents with DAF SSL exceedances not found in nearby wells, have maximum detections within one order of magnitude or less than the DAF SSL.

4.0 Conclusions

This investigation was conducted to characterize soils in the rail car loading area for future excavation. ~~Much of the vertical and horizontal delineation of contamination was achieved~~Based on the results of the investigation, the Refinery will propose to extend the excavation boundaries west of RCR-SB-4, north of RCR-SB-5, north of RCR-SB-2, south of RCR-SB-1, and east and west of RCR-SB1 and RCR-SB-2 until soil concentrations in floor and sidewall confirmation sampling shows that soil concentrations are below the applicable screening levels in the Phase II IWP. If confirmation sampling shows cleanup has been achieved to meet Industrial and Construction Worker SSLs, but not Residential SSLs, then appropriate controls will be required to be in place to maintain the site as an industrial site and manage residual risk. One soil boring will be installed at a later date, which will be included in the Phase II IWP that will be submitted to NMED by May 1, 2024.~~, and applicable information will be submitted to NMED as an addendum to this report 90 days after the receipt of analytical data. Additionally, the Refinery will submit an investigation work plan to NMED in early 2023 that proposes an investigation into Area of Concern 17 – Railroad Loading/Unloading Facility.~~

Significant findings of this investigation include:

- No VOC or SVOC SIM Industrial or Construction Worker SSL exceedances
- 46 samples with 1 or more SVOC reporting limit Industrial or Construction Worker SSL exceedance
- No metals Industrial or Construction Worker SSL exceedances
- 11 samples with 1 or more TPH Industrial or Construction Worker SSL exceedance

The results provide a ~~firm~~ basis for ~~proceeding with~~ composing the Phase II IWP~~excavation~~. ~~Following NMED's review of these results and approval of this report, the Refinery plans to proceed with excavation. The general excavation area is shown on Figure 4. Based on the analytical data and field observations, the excavation of the impacted areas can be reliably guided by visual and olfactory observation and PID field screenings. PID field screening and laboratory confirmation sampling will be used during excavation to confirm that all impacted soils from the railcar release have been removed.~~ The proposed analytical suite for ~~F~~floor and wall confirmation samples will be the same as collected for this investigation and ~~analyzed for TPH-DRO and TPH-GRO~~discussed in the Phase II IWP. ~~Wall confirmation samples will be collected every 250 feet along the excavation perimeter and six floor samples will be collected.~~ The proposed confirmation sampling interval will be outlined in the Phase II IWP and sample results will be compared to NMED Residential, Industrial, and Construction Worker SSLs. ~~The comparison will be submitted to NMED in a subsequent report 120 days after the receipt of analytical data.~~ Additionally, details of the procedure for confirmation sampling and excavation will be included in the Phase II IWP.

The Refinery will ~~engage an excavation contractor upon receipt of NMED approval of this report. Following excavation, soils will be sampled and managed appropriately.~~ submit the Phase II IWP by May 1, 2024.

5.0 References

Marathon Petroleum Corporation (MPC). 2020. Response Action Report, DGS 105 Additive Tank – Rail Car Loading Area – Gasoline Release, Marathon Petroleum Company LP, Gallup Refinery (dba Western Refining Southwest, Inc.), EPA ID #NMD000333211, WRG-17-MISC. January 6.

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Figures

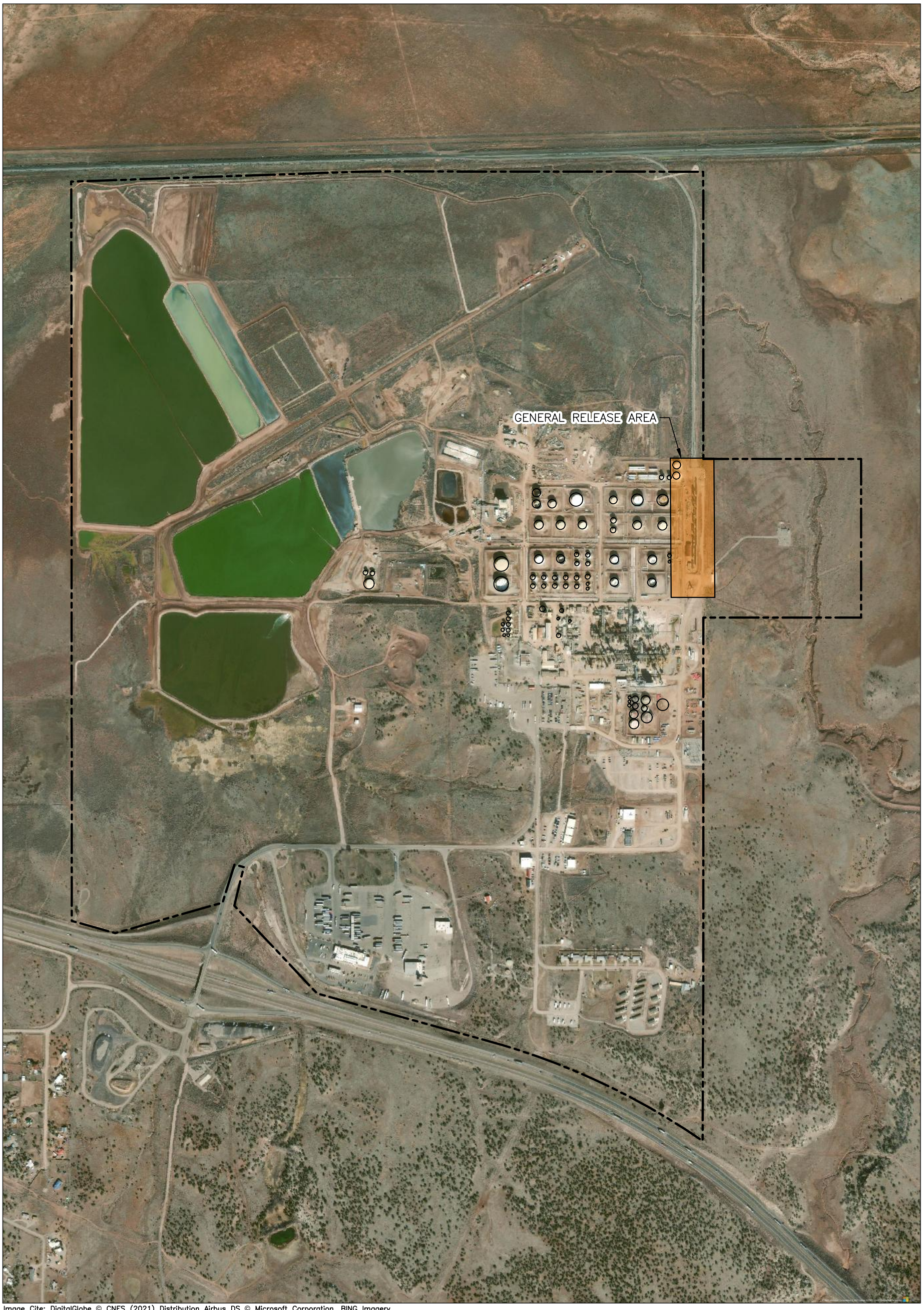


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EXPLANATION

PROPERTY BOUNDARY (APPROXIMATE)

GENERAL RELEASE AREA

TANK

N

0 800'

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FIGURE 1

REFINERY AND RAIL CAR LOADING AREA LOCATION
RAIL CAR LOADING AREA RELEASE

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

Drawn By:	Checked By:	Scale:	Date:	File:
REP	MS	1" = 800'	8/25/21	697-REFINERYLOC-202108

\\TRIHYDRO.COM\CLIENTS\TON\MARATHON\CADD\GALLUP_REPORTS\AOC\AOC17_RAILCARRELEASE\697-REFINERYLOC-202108

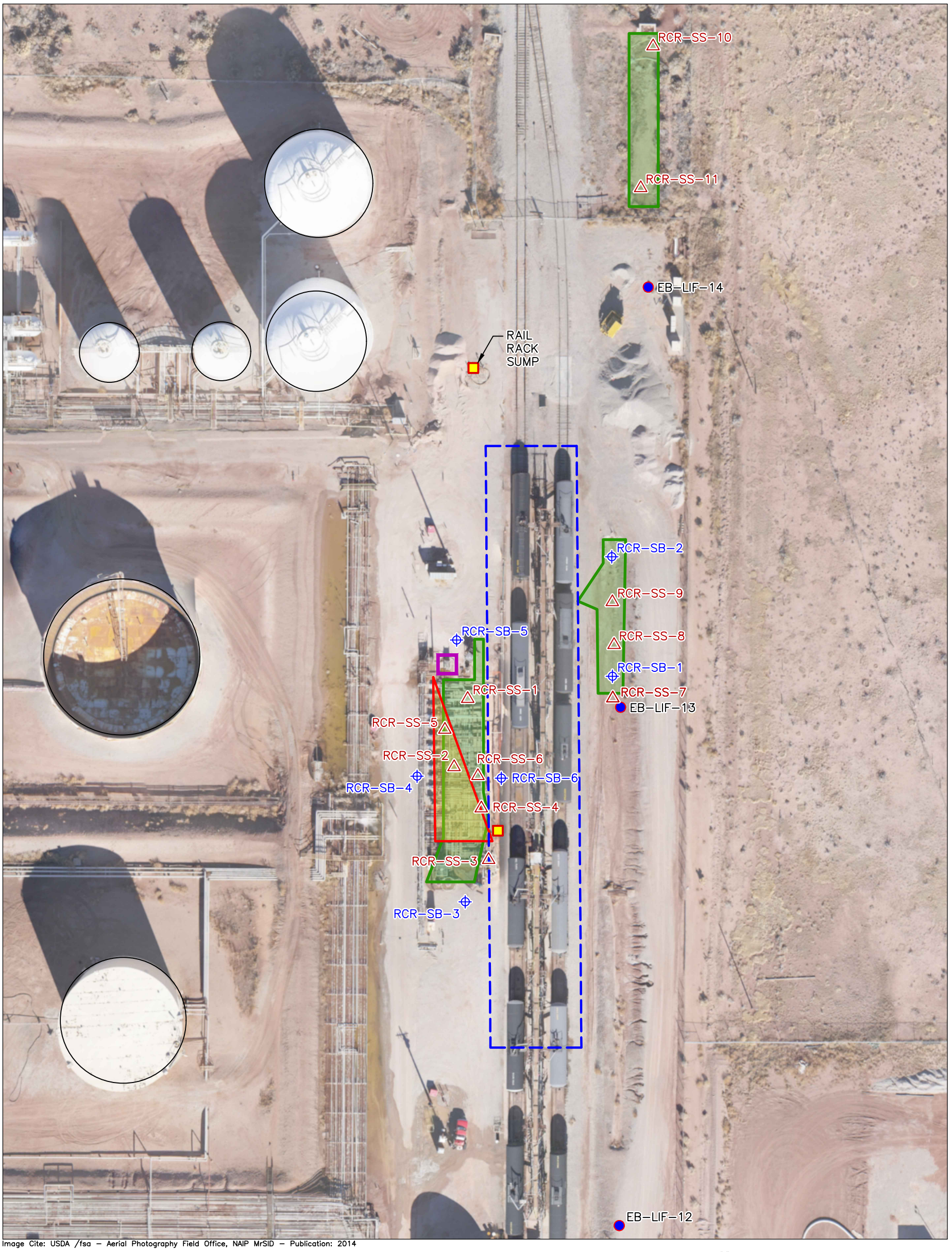


Image Cite: USDA /fsa – Aerial Photography Field Office, NAIP MrSID – Publication: 2014

EXPLANATION

- RCR-SB-3 — SOIL BORING AND DESIGNATION
- RCR-SS-3 — SOIL SAMPLE AND DESIGNATION
- EB-LIF-12 — 2019 LIF LOCATION AND DESIGNATION
- RAIL CAR LOADING AREA
- TANK
- DIESEL RELEASE EXTENT (MARCH 13, 2019)
- GASOLINE RELEASE EXTENT (MAY 7, 2017)
- DGS 105 ADDITIVE TANK
- RAIL RACK SUMP OR SEWER BOX

N

0 60'

M:\TFON\MARATHON\CADD\GALLUP_REPORTS\AOC\AOC17_RAILCARRELEASE\697-AOC17-GPSSAMPLOCS-202110

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FIGURE 2

SAMPLE LOCATIONS
RAIL CAR LOADING AREA RELEASE

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

Drawn By: REP	Checked By: EC	Scale: 1" = 60'	Date: 11/22/21	File: 697-AOC17-GPSSAMPLOCS-202110

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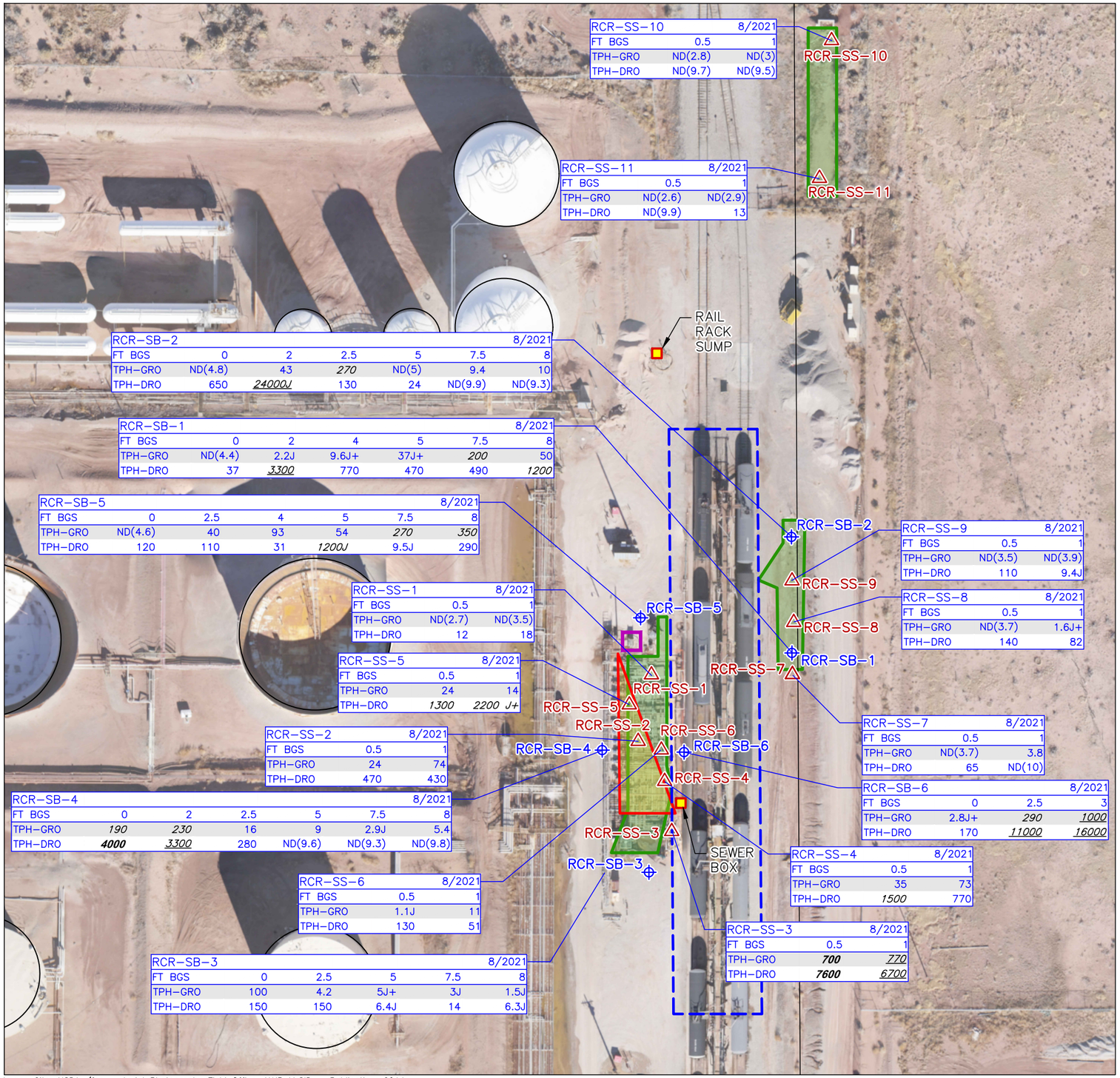


Image Cite: USDA /fsa – Aerial Photography Field Office, NAIP MrSID – Publication: 2014

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EXPLANATION

- RCR-SB-4 — SOIL BORING AND DESIGNATION
- RCR-SS-10 — SOIL SAMPLE AND DESIGNATION
- TANK
- RAIL CAR LOADING AREA
- DIESEL RELEASE EXTENT (MARCH 13, 2019)
- GASOLINE RELEASE EXTENT (MAY 7, 2017)
- DGS 105 ADDITIVE TANK
- RAIL RACK SUMP OR SEWER BOX

N

0 70'

CONSTITUENT TABLE EXPLANATION

SAMPLE LOCATION →	RCR-SS-7	8/2021 ← SAMPLE DATE
FEET BELOW GROUND SURFACE →	FT BGS	1
	TPH-GRO	500/100
	TPH-DRO	3,000/1,000
	NMED INDUSTRIAL/CONSTRUCTION WORKER SSL (mg/kg) ↑	
	NMED RESIDENTAIL SSL (mg/kg) ↑	

NOTES:

1. BOLD TEXT INDICATES RESULTS THAT EXCEEDED THE NMED INDUSTRIAL SSL (0-1 FT BGS)
2. ITALICIZED TEXT INDICATES RESULTS THAT EXCEED THE NMED RESIDENTIAL SSL (ALL DEPTHS)
3. UNDERLINED TEXT INDICATES RESULTS THAT EXCEED THE NMED CONSTRUCTION WORKER SSL (DEEPER THAN 1 FT BGS)
4. TPH-DRO = TOTAL PETROLEUM HYDROCARBON - DIESEL RANGE ORGANICS
5. TPH-GRO = TOTAL PETROLEUM HYDROCARBON - GASOLINE RANGE ORGANICS
6. J = ESTIMATED CONCENTRATION
7. J+ = ESTIMATED CONCENTRATION, POSSIBLY BIASED HIGH
8. ND = NOT DETECTED (REPORTING LIMIT IN PARENTHESES)
9. NMED = NEW MEXICO ENVIRONMENT DEPARTMENT
10. MG/KG = MILLIGRAMS PER KILOGRAM
11. SSL = SOIL SCREENING LEVEL

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FIGURE 3

TPH-DRO AND TPH-GRO SAMPLE RESULTS
RAIL CAR LOADING AREA RELEASE

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

Drawn By: KML	Checked By: BB	Scale: 1" = 70'	Date: 2/8/24	File: 697-AOC17-SAMPLEDATA-202208

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

Tables

TABLE 1. SAMPLING LOCATIONS, DEPTHS, AND PID READINGS
RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Sample ID	Sample depth (ft bgs)	PID reading (ppm)
RCR-SB-1	0 (Surface)	0.0
	1	0.0
	2	6.0
	3	12.5
	4	107.4
	5	21.2
	6	31.8
	7	75.1
	8	31.6
RCR-SB-2	0 (Surface)	0.0
	1	16.5
	2	274.7
	3	17.3
	4	0.9
	5	0.1
	6	1.1
	7	3.6
	7.5	16.9
	8	15.4
RCR-SB-3	0 (Surface)	16.7
	1	5.7
	2	17.2
	3	9.9
	4	0.8
	5	8.2
	6	14.7
	7	33.2
	8	60.2
RCR-SB-4	0 (Surface)	98.1
	1	120.8
	2	223.0
	3	78.7
	4	8.3
	5	5.8
	6	4.0
	7	4.9
	8	6.3
RCR-SB-5	0 (Surface)	0.0
	1	0.0
	2	0.0
	3	11.0
	4	369.8
	5	115.4
	6	37.6
	7	56.3
	8	367.4
RCR-SB-6	0 (Surface)	107.7
	1	226.6
	2	877.0
	3	902.0

Notes:
ft bgs - Foot/feet below ground surface
ppm - Parts per million
PID - Photoionization detector

Released to Imaging: 8/16/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Bromobenzene (mg/kg)	Bromoform (mg/kg)	Carbon Disulfide (mg/kg)	Carbon tetrachloride (mg/kg)	4-Chlorotoluene (mg/kg)	1,2-Dibromo-3-chloropropane (mg/kg)	Dibromochloromethane (mg/kg)	Dibromomethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	ND(0.44)	ND(0.044)	ND(0.044)	*ND(0.088)* *	ND(0.044)	ND(0.044)	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.39)	ND(0.039)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	ND(0.49)	ND(0.049)	ND(0.049)	*ND(0.099)* *	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	ND(0.47)	ND(0.047)	ND(0.047)	*ND(0.094)* *	ND(0.047)	ND(0.047)	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	ND(1)	ND(0.1)	ND(0.1)	*ND(0.2)* *	ND(0.1)	ND(0.1)	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	ND(0.45)	ND(0.045)	ND(0.045)	*ND(0.091)* *	ND(0.045)	ND(0.045)	ND(0.045)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	ND(0.48)	ND(0.048)	ND(0.048)	*ND(0.096)* *	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.18)	ND(1.8)	ND(0.18)	ND(0.18)	*ND(0.35)* *	ND(0.18)	ND(0.18)	ND(0.18)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.17)	ND(1.7)	ND(0.17)	ND(0.17)	*ND(0.35)* *	ND(0.17)	ND(0.17)	ND(0.17)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.038)	ND(0.38)	ND(0.038)	ND(0.038)	ND(0.075)	ND(0.038)	ND(0.038)	ND(0.038)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	ND(0.41)	ND(0.041)	ND(0.041)	ND(0.081)	ND(0.041)	ND(0.041)	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	ND(0.42)	ND(0.042)	ND(0.042)	ND(0.084)	ND(0.042)	ND(0.042)	ND(0.042)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	ND(0.34)	ND(0.034)	ND(0.034)	ND(0.067)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	ND(0.48)	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.39)	ND(0.039)	ND(0.039)	ND(0.078)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.4)	ND(0.04)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.25)	ND(2.5)	ND(0.25)	ND(0.25)	*ND(0.49)* *	ND(0.25)	ND(0.25)	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.24)	ND(2.4)	ND(0.24)	ND(0.24)	*ND(0.48)* *	ND(0.24)	ND(0.24)	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.4)	ND(0.04)	ND(0.04)	ND(0.08)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	ND(0.26)	ND(0.026)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	ND(0.26)	ND(0.026)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.4)	ND(0.04)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	ND(0.46)	ND(0.046)	ND(0.046)	*ND(0.093)* *	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	ND(1.5)	ND(0.15)	ND(0.15)	*ND(0.3)* *	ND(0.15)	ND(0.15)	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.23)	ND(2.3)	ND(0.23)	ND(0.23)	*ND(0.45)* *	ND(0.23)	ND(0.23)	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.032)	ND(0.32)	ND(0.032)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(1.6)	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(1.6)	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.049)	ND(0.49)	ND(0.049)	ND(0.049)	*ND(0.097)* *	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.066)	ND(0.66)	ND(0.066)	ND(0.066)	*ND(0.13)* *	ND(0.066)	ND(0.066)	ND(0.066)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.41)	ND(4.1)	ND(0.41)	ND(0.41)	*ND(0.82)* *	ND(0.41)	ND(0.41)	ND(0.41)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.065)	ND(0.65)	ND(0.065)	ND(0.065)	*ND(0.13)* *	ND(0.065)	ND(0.065)	ND(0.065)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	ND(0.27)	ND(0.027)	ND(0.027)	ND(0.055)	ND(0.027)	ND(0.027)	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.35)	ND(0.035)	ND(0.035)	ND(0.069)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	ND(0.28)	ND(0.028)	ND(0.028)	ND(0.055)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	ND(0.3)	ND(0.03)	ND(0.03)	ND(0.059)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	ND(0.26)	ND(0.026)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		NA	1,760	8,541	52.5	NA	1.179	67.37	288.2	12,970
NMED Residential SSL		NA	674	1,550	10.7	NA	0.0858	13.9	57.9	2,150
NMED Construction Worker SSL		NA	23,700	1,620	252	NA	5.53	340	53.9	2,500

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,3-Dichlorobenzene (mg/kg)	1,4-Dichlorobenzene (mg/kg)	Dichlorodifluoromethane (mg/kg)	cis-1,2-Dichloroethene (mg/kg)	trans-1,2-Dichloroethene (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3-Dichloropropane (mg/kg)	1,1-Dichloropropene (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.088)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.077)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.099)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.094)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.2)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.091)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.35)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.35)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.075)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.059)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.081)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.084)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.067)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.061)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.078)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.49)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.08)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.093)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.3)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.45)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.064)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.062)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.32)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.32)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.097)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.13)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.82)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.13)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.055)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.069)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.055)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.059)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.062)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
NMED Industrial SSL		NA	6,729	864.8	2,596	1,096	86.82	NA	NA
NMED Residential SSL		NA	1,290	182	156	210.19	17.8	NA	NA
NMED Construction Worker SSL		NA	45,900	161	708	206	415	NA	NA

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	trans-1,3-Dichloropropene (mg/kg)	Hexachlorobutadiene (mg/kg)	Methylene Chloride (mg/kg)	1,1,1,2-Tetrachloroethane (mg/kg)	1,2,3-Trichlorobenzene (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1,2-Trichloroethane (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.088)	ND(0.13)	ND(0.044)	ND(0.088)	ND(0.044)	ND(0.044)	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.077)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.099)	ND(0.15)	ND(0.049)	ND(0.099)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.094)	ND(0.14)	ND(0.047)	ND(0.094)	ND(0.047)	ND(0.047)	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.2)	ND(0.3)	ND(0.1)	ND(0.2)	ND(0.1)	ND(0.1)	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.091)	ND(0.14)	ND(0.045)	ND(0.091)	ND(0.045)	ND(0.045)	ND(0.045)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.096)	ND(0.14)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.35)	ND(0.53)	ND(0.18)	ND(0.35)	ND(0.18)	ND(0.18)	ND(0.18)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.35)	ND(0.52)	ND(0.17)	ND(0.35)	ND(0.17)	ND(0.17)	ND(0.17)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.075)	ND(0.11)	ND(0.038)	ND(0.075)	ND(0.038)	ND(0.038)	ND(0.038)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.059)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.081)	ND(0.12)	ND(0.041)	ND(0.081)	ND(0.041)	ND(0.041)	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.084)	ND(0.13)	ND(0.042)	ND(0.084)	ND(0.042)	ND(0.042)	ND(0.042)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.067)	ND(0.1)	ND(0.034)	ND(0.067)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.061)	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.097)	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.078)	ND(0.12)	ND(0.039)	ND(0.078)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.081)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.49)	ND(0.74)	ND(0.25)	ND(0.49)	ND(0.25)	ND(0.25)	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.48)	ND(0.73)	ND(0.24)	ND(0.48)	ND(0.24)	ND(0.24)	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.08)	ND(0.12)	ND(0.04)	ND(0.08)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.073)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.081)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.093)	ND(0.14)	ND(0.046)	ND(0.093)	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.3)	ND(0.45)	ND(0.15)	ND(0.3)	ND(0.15)	ND(0.15)	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.45)	ND(0.68)	ND(0.23)	ND(0.45)	ND(0.23)	ND(0.23)	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.064)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.062)	ND(0.094)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.32)	ND(0.49)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.32)	ND(0.48)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.097)	ND(0.15)	ND(0.049)	ND(0.097)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.13)	ND(0.2)	ND(0.066)	ND(0.13)	ND(0.066)	ND(0.066)	ND(0.066)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.82)	ND(1.2)	ND(0.41)	ND(0.82)	ND(0.41)	ND(0.41)	ND(0.41)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.13)	ND(0.2)	ND(0.065)	ND(0.13)	ND(0.065)	ND(0.065)	ND(0.065)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.055)	ND(0.082)	ND(0.027)	ND(0.055)	ND(0.027)	ND(0.027)	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.069)	ND(0.1)	ND(0.035)	ND(0.069)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.055)	ND(0.083)	ND(0.028)	ND(0.055)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.059)	ND(0.089)	ND(0.03)	ND(0.059)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.062)	ND(0.093)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		NA	52.08	5,131	137.2	NA	1,253	72,530	92.1
NMED Residential SSL		NA	68.3	766	28.1	NA	240	14,400	18.8
NMED Construction Worker SSL		NA	2,400	89,600	659	NA	8,540	13,600	4,300

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Trichloroethene (mg/kg)	Trichlorofluoromethane (mg/kg)	1,2,3-Trichloropropane (mg/kg)	Vinyl Chloride (mg/kg)	1,1,2,2-Tetrachloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	*ND(0.088)* *	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	0.014 J	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	*ND(0.077)* *	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	0.023 J	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	*ND(0.099)* *	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.072 J+	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	*ND(0.094)* *	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	0.1	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	*ND(0.2)* *	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.28	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	*ND(0.091)* *	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	0.043 J	ND(0.045)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	*ND(0.096)* *	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.18)	*ND(0.35)* *	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	1.1	ND(0.18)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.17)	*ND(0.35)* *	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	0.89	ND(0.17)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.038)	*ND(0.075)* *	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	12	ND(0.038)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	*ND(0.059)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	0.0058 J	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	*ND(0.081)* *	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	*ND(0.084)* *	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	*ND(0.067)* *	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	0.15	ND(0.034)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	*ND(0.061)* *	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	0.011 J	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	0.026 J	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	*ND(0.078)* *	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	*ND(0.081)* *	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.25)	*ND(0.49)* *	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	1.4	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.24)	*ND(0.48)* *	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	1.9	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	*ND(0.08)* *	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	0.031 J	ND(0.04)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	*ND(0.052)* *	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	*ND(0.052)* *	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	*ND(0.073)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.02 J	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	*ND(0.081)* *	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	0.04 J	ND(0.04)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	*ND(0.093)* *	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	*ND(0.3)* *	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	0.085 J	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.23)	*ND(0.45)* *	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	0.23	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.032)	*ND(0.064)* *	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	1.3	ND(0.032)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.031)	*ND(0.062)* *	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	1.2	ND(0.031)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	20	ND(0.16)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	24	ND(0.16)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.049)	*ND(0.097)* *	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.51	ND(0.049)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.066)	*ND(0.13)* *	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	81	ND(0.066)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.41)	*ND(0.82)* *	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	28	ND(0.41)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.065)	*ND(0.13)* *	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	33	ND(0.065)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	*ND(0.055)* *	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	0.013 J	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	*ND(0.069)* *	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.0097 J	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	*ND(0.055)* *	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	*ND(0.059)* *	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	*ND(0.062)* *	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	*ND(0.052)* *	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		36.46	6,031	1.211	28.41	39.4	383.3	2,255	NA	3.309
NMED Residential SSL		15.5	1,230	0.051	0.742	7.98	78.6	440	NA	0.672
NMED Construction Worker SSL		5,370	1,130	8.26	161	197	1,820	424	NA	16.3

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,2-Dichloroethane (mg/kg)	1,3,5-Trimethylbenzene (mg/kg)	1-Methylnaphthalene (mg/kg)	2,2-Dichloropropane (mg/kg)	2-Butanone (mg/kg)	2-Chlorotoluene (mg/kg)	2-Hexanone (mg/kg)	2-Methylnaphthalene (mg/kg)	4-Methyl-2-Pentanone (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	ND(0.18)	ND(0.088)	ND(0.44)	ND(0.044)	ND(0.44)	ND(0.18)	ND(0.44)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	0.39	ND(0.077)	ND(0.39)	ND(0.039)	ND(0.39)	ND(0.15)	ND(0.39)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	1.9 J+	ND(0.099)	ND(0.49)	ND(0.049)	0.36J/ND(0.49)U	ND(0.2)	ND(0.49)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	0.61	ND(0.094)	ND(0.47)	ND(0.047)	0.19J/ND(0.47)U	0.054 J	0.24 J
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	0.82	ND(0.2)	ND(1)	ND(0.1)	ND(1)	ND(0.4)	ND(1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	0.082 J	ND(0.091)	ND(0.45)	ND(0.045)	ND(0.45)	ND(0.18)	ND(0.45)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	ND(0.19)	ND(0.096)	ND(0.48)	ND(0.048)	ND(0.48)	0.054 J	ND(0.48)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	0.063 J	5.9	ND(0.35)	ND(1.8)	ND(0.18)	ND(1.8)	0.61 J	ND(1.8)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	0.053 J	5.6	ND(0.35)	ND(1.7)	ND(0.17)	ND(1.7)	0.46 J	ND(1.7)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	0.8	3.7	ND(0.075)	ND(0.38)	ND(0.038)	ND(0.38)	1.8	ND(0.38)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	ND(0.12)	ND(0.059)	ND(0.29)	ND(0.029)	ND(0.29)	ND(0.12)	ND(0.29)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	ND(0.16)	ND(0.081)	ND(0.41)	ND(0.041)	ND(0.41)	ND(0.16)	ND(0.41)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	ND(0.17)	ND(0.084)	ND(0.42)	ND(0.042)	ND(0.42)	ND(0.17)	ND(0.42)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	0.08 J	ND(0.067)	ND(0.34)	ND(0.034)	ND(0.34)	0.074 J	ND(0.34)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	0.066 J	ND(0.061)	ND(0.31)	ND(0.031)	ND(0.31)	0.074 J	ND(0.31)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	0.15 J	ND(0.097)	0.45J/ND(0.48)U	ND(0.048)	0.045J/ND(0.48)U	0.13 J	0.066 J
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	0.091 J	ND(0.078)	ND(0.39)	ND(0.039)	ND(0.39)	0.037 J	ND(0.39)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.16)	ND(0.081)	ND(0.4)	ND(0.04)	ND(0.4)	ND(0.16)	ND(0.4)
RCR-SB-4	08/11/21	ND(0.25)	0.57	22	ND(0.49)	ND(2.5)	ND(0.25)	ND(2.5)	29	ND(2.5)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	0.68	17	ND(0.48)	ND(2.4)	ND(0.24)	ND(2.4)	32	ND(2.4)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	0.16 J	ND(0.08)	ND(0.4)	ND(0.04)	ND(0.4)	0.27	ND(0.4)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	ND(0.1)	ND(0.052)	ND(0.26)	ND(0.026)	ND(0.26)	ND(0.1)	ND(0.26)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	ND(0.1)	ND(0.052)	ND(0.26)	ND(0.026)	ND(0.26)	ND(0.1)	ND(0.26)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	ND(0.15)	ND(0.073)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.16)	ND(0.081)	ND(0.4)	ND(0.04)	ND(0.4)	ND(0.16)	ND(0.4)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	ND(0.19)	ND(0.093)	ND(0.46)	ND(0.046)	ND(0.46)	ND(0.19)	ND(0.46)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	ND(0.59)	ND(0.3)	ND(1.5)	ND(0.15)	ND(1.5)	ND(0.59)	ND(1.5)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	0.056 J	ND(0.91)	ND(0.45)	ND(2.3)	ND(0.23)	ND(2.3)	ND(0.91)	ND(2.3)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	0.33	ND(0.13)	ND(0.064)	ND(0.32)	ND(0.032)	ND(0.32)	0.046 J	ND(0.32)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	0.32	ND(0.12)	ND(0.062)	ND(0.31)	ND(0.031)	ND(0.31)	0.055 J	ND(0.31)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	4.8	1.2	ND(0.32)	ND(1.6)	ND(0.16)	ND(1.6)	2	ND(1.6)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	5.3	1.6	ND(0.32)	ND(1.6)	ND(0.16)	ND(1.6)	2.7	ND(1.6)
RCR-SB-6	08/11/21	ND(0.049)	0.023 J	0.13 J	ND(0.097)	ND(0.49)	ND(0.049)	0.038J/ND(0.49)U	0.21	ND(0.49)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	3.5	25	ND(0.13)	ND(0.66)	ND(0.066)	ND(0.66)	42	ND(0.66)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	4.1	38	ND(0.82)	ND(4.1)	ND(0.41)	ND(4.1)	65	ND(4.1)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	3.5	42	ND(0.13)	ND(0.65)	ND(0.065)	ND(0.65)	71	ND(0.65)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	ND(0.11)	ND(0.055)	ND(0.27)	ND(0.027)	ND(0.27)	0.032 J	ND(0.27)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.14)	ND(0.069)	ND(0.35)	ND(0.035)	ND(0.35)	ND(0.14)	ND(0.35)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	ND(0.11)	ND(0.055)	ND(0.28)	ND(0.028)	ND(0.28)	ND(0.11)	ND(0.28)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	ND(0.12)	ND(0.059)	ND(0.3)	ND(0.03)	ND(0.3)	ND(0.12)	ND(0.3)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	ND(0.12)	ND(0.062)	ND(0.31)	ND(0.031)	ND(0.31)	ND(0.12)	ND(0.31)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	ND(0.1)	ND(0.052)	ND(0.26)	ND(0.026)	ND(0.26)	ND(0.1)	ND(0.26)
NMED Industrial SSL		40.67	NA	813	NA	411,000	25,960	NA	3,368	81,650
NMED Residential SSL		8.32	NA	172	NA	37,400	1,560	NA	232	5,810
NMED Construction Worker SSL		195	NA	6,060	NA	91,700	7,080	NA	1,000	20,200

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Acetone (mg/kg)	Benzene (mg/kg)	Bromodichloromethane (mg/kg)	Bromomethane (mg/kg)	Chlorobenzene (mg/kg)	Chloroethane (mg/kg)	Chloroform (mg/kg)	Chloromethane (mg/kg)	Cis-1,3-dichloropropene (mg/kg)	Ethylbenzene (mg/kg)	Isopropylbenzene (mg/kg)
RCR-SB-1	08/11/21	ND(0.66)	ND(0.022)	ND(0.044)	ND(0.13)	ND(0.044)	ND(0.088)	ND(0.044)	ND(0.13)	ND(0.044)	ND(0.044)	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.58)	0.011 J	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.12)	ND(0.039)	0.045	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.74)	0.023 J+	0.012 J+	ND(0.15)	ND(0.049)	ND(0.099)	0.011 J+	ND(0.15)	ND(0.049)	0.021 J+	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.71)	0.1	0.026 J	ND(0.14)	ND(0.047)	ND(0.094)	0.028 J	ND(0.14)	ND(0.047)	0.032 J	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.5)	1.1	ND(0.1)	ND(0.3)	ND(0.1)	ND(0.2)	ND(0.1)	ND(0.3)	ND(0.1)	0.11	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.68)	0.63	ND(0.045)	ND(0.14)	ND(0.045)	ND(0.091)	ND(0.045)	ND(0.14)	ND(0.045)	0.048	ND(0.045)
RCR-SB-2	08/11/21	ND(0.72)	ND(0.024)	ND(0.048)	ND(0.14)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.14)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(2.7)	0.41	ND(0.18)	ND(0.53)	ND(0.18)	ND(0.35)	ND(0.18)	ND(0.53)	ND(0.18)	1	0.041 J
RCR-SB-2 (2 ft) Dup	08/11/21	ND(2.6)	0.32	ND(0.17)	ND(0.52)	ND(0.17)	ND(0.35)	ND(0.17)	ND(0.52)	ND(0.17)	0.84	0.033 J
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.56)	0.099	ND(0.038)	ND(0.11)	ND(0.038)	ND(0.075)	ND(0.038)	ND(0.11)	ND(0.038)	6.2	0.52
RCR-SB-2 (5 ft)	08/11/21	ND(0.44)	0.017	ND(0.029)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.088)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.61)	0.86	ND(0.041)	ND(0.12)	ND(0.041)	ND(0.081)	ND(0.041)	ND(0.12)	ND(0.041)	0.012 J	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.63)	1.2	ND(0.042)	ND(0.13)	ND(0.042)	ND(0.084)	ND(0.042)	ND(0.13)	ND(0.042)	0.036 J	ND(0.042)
RCR-SB-3	08/11/21	ND(0.5)	0.58	ND(0.034)	ND(0.1)	ND(0.034)	ND(0.067)	ND(0.034)	ND(0.1)	ND(0.034)	0.81	0.086
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.46)	0.13	ND(0.031)	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.092)	ND(0.031)	0.062	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	0.17J/ND(0.73)U	0.019 J	0.0094 J	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.15)	ND(0.048)	0.029 J	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.58)	0.14	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.078)	ND(0.039)	ND(0.12)	ND(0.039)	0.065	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.6)	0.066	ND(0.04)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.12)	ND(0.04)	0.026 J	ND(0.04)
RCR-SB-4	08/11/21	ND(3.7)	0.87	ND(0.25)	ND(0.74)	ND(0.25)	ND(0.49)	ND(0.25)	ND(0.74)	ND(0.25)	ND(0.25)	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(3.6)	1.7	ND(0.24)	ND(0.73)	ND(0.24)	ND(0.48)	ND(0.24)	ND(0.73)	ND(0.24)	0.4	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.6)	0.36	ND(0.04)	ND(0.12)	ND(0.04)	ND(0.08)	ND(0.04)	ND(0.12)	ND(0.04)	0.36	0.037 J
RCR-SB-4 (5 ft)	08/12/21	ND(0.39)	0.63	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.078)	ND(0.026)	0.2	0.016 J
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.39)	0.57	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.078)	ND(0.026)	0.15	0.012 J
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.55)	0.5	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.11)	ND(0.037)	0.11	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.61)	0.43	ND(0.04)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.12)	ND(0.04)	0.16	0.012 J
RCR-SB-5	08/11/21	ND(0.7)	ND(0.023)	ND(0.046)	ND(0.14)	ND(0.046)	ND(0.093)	ND(0.046)	ND(0.14)	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(2.2)	7.5	ND(0.15)	ND(0.45)	ND(0.15)	ND(0.3)	ND(0.15)	ND(0.45)	ND(0.15)	0.8	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(3.4)	14	ND(0.23)	ND(0.68)	ND(0.23)	ND(0.45)	ND(0.23)	ND(0.68)	ND(0.23)	1.3	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.48)	0.81 J	ND(0.032)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.096)	ND(0.032)	0.88	0.049
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.47)	0.34 J	ND(0.031)	ND(0.094)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.094)	ND(0.031)	0.64	0.035
RCR-SB-5 (7.5 ft)	08/11/21	ND(2.4)	2.3	ND(0.16)	ND(0.49)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.49)	ND(0.16)	8.7	1.2
RCR-SB-5 (8 ft)	08/11/21	ND(2.4)	1.4	ND(0.16)	ND(0.48)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.48)	ND(0.16)	8.4	1.4
RCR-SB-6	08/11/21	ND(0.73)	0.0098 J	ND(0.049)	ND(0.15)	ND(0.049)	ND(0.097)	ND(0.049)	ND(0.15)	ND(0.049)	0.1	0.017 J
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.98)	0.25	ND(0.066)	ND(0.2)	ND(0.066)	ND(0.13)	ND(0.066)	ND(0.2)	ND(0.066)	11	2.5
RCR-SB-6 (3 ft)	08/11/21	ND(6.2)	4.4	ND(0.41)	ND(1.2)	ND(0.41)	ND(0.82)	ND(0.41)	ND(1.2)	ND(0.41)	34	4.7
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.98)	4.7	ND(0.065)	ND(0.2)	ND(0.065)	ND(0.13)	ND(0.065)	ND(0.2)	ND(0.065)	32	4
RCR-SS1 (0.5 ft)	08/12/21	ND(0.41)	ND(0.014)	ND(0.027)	ND(0.082)	ND(0.027)	ND(0.055)	ND(0.027)	ND(0.082)	ND(0.027)	ND(0.027)	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.52)	ND(0.017)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.069)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.41)	ND(0.014)	ND(0.028)	ND(0.083)	ND(0.028)	ND(0.055)	ND(0.028)	ND(0.083)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.44)	ND(0.015)	ND(0.03)	ND(0.089)	ND(0.03)	ND(0.059)	ND(0.03)	ND(0.089)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.47)	ND(0.016)	ND(0.031)	ND(0.093)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.093)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.39)	ND(0.013)	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		960,100	87.24	30.18	94.52	2,157	89,540	28.66	200.8	NA	367.6	14,220
NMED Residential SSL		66,300	17.8	6.19	17.7	378	19,000	5.9	41.1	NA	75.1	2,360
NMED Construction Worker SSL		242,000	423	143	17.9	412	16,600	134	956	NA	1,770	2,740

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	MTBE (mg/kg)	Naphthalene (mg/kg)	n-Butyl-benzene (mg/kg)	n-Propyl-benzene (mg/kg)	p-Isopropyl-toluene (mg/kg)	sec-Butylbenzene (mg/kg)	Styrene (mg/kg)	tert-Butylbenzene (mg/kg)	Tetrachloroethene (mg/kg)	Toluene (mg/kg)	Xylenes, Total (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.088)	ND(0.13)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	0.011 J	0.039 J
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.077)	ND(0.12)	0.028 J	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.077)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.099)	0.021 J+	0.035 J+	0.021 J+	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.011 J+	ND(0.099)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.094)	0.017 J	0.021 J	0.021 J	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	0.057	0.052 J
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.2)	ND(0.3)	0.031 J	0.053 J	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.52	0.18 J
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.091)	ND(0.14)	0.0084 J	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	0.26	0.082 J
RCR-SB-2	08/11/21	ND(0.048)	ND(0.096)	ND(0.14)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.35)	0.054 J	0.094 J	0.049 J	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	0.026 J	1.3
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.35)	ND(0.52)	0.064 J	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	1.1
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	1.2	0.38	2.3	0.11	0.17	ND(0.038)	ND(0.038)	ND(0.038)	0.061	8.8
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.059)	ND(0.088)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.059)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.081)	ND(0.12)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	0.023 J	ND(0.081)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.084)	ND(0.13)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	0.056	0.048 J
RCR-SB-3	08/11/21	0.039	0.12	0.082 J	0.3	0.015 J	0.077	ND(0.034)	ND(0.034)	ND(0.034)	0.0051 J	0.14
RCR-SB-3 (2.5 ft)	08/11/21	0.061	0.035 J	ND(0.092)	0.021 J	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.061)
RCR-SB-3 (5 ft)	08/11/21	0.032 J	0.063 J	ND(0.15)	0.017 J	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)
RCR-SB-3 (7.5 ft)	08/11/21	0.08	0.035 J	ND(0.12)	0.022 J	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.078)
RCR-SB-3 (8 ft)	08/11/21	0.043	ND(0.081)	ND(0.12)	0.0093 J	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-4	08/11/21	0.53	4.2	ND(0.74)	ND(0.25)	0.074 J	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	0.64
RCR-SB-4 (2 ft)	08/11/21	0.5	4.7	0.085 J	0.094 J	0.11 J	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	0.041 J	1.8
RCR-SB-4 (2.5 ft)	08/11/21	1.3	0.1	0.039 J	0.12	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.08)
RCR-SB-4 (5 ft)	08/12/21	1.5	0.017 J	ND(0.078)	0.046	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (5 ft) Dup	08/12/21	1.4	0.015 J	ND(0.078)	0.034	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (7.5 ft)	08/11/21	2.3	ND(0.073)	ND(0.11)	0.016 J	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SB-4 (8 ft)	08/11/21	2.1	0.03 J	0.012 J	0.043	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.093)	ND(0.14)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.093)
RCR-SB-5 (2.5 ft)	08/11/21	0.64	ND(0.3)	ND(0.45)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	0.5	2.2
RCR-SB-5 (4 ft)	08/11/21	0.79	ND(0.45)	ND(0.68)	0.047 J	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	1.3	4.8
RCR-SB-5 (5 ft)	08/11/21	0.35 J	0.08	0.034 J	0.25	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	0.066	2.4
RCR-SB-5 (5 ft) Dup	08/11/21	0.071 J	0.076	0.037 J	0.19	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	0.066	2.2
RCR-SB-5 (7.5 ft)	08/11/21	2.2	1.2	0.71	4.2	0.23	0.37	ND(0.16)	ND(0.16)	ND(0.16)	1.3	12
RCR-SB-5 (8 ft)	08/11/21	1.5	1.6	0.97	5.1	0.3	0.48	ND(0.16)	ND(0.16)	ND(0.16)	0.2	12
RCR-SB-6	08/11/21	0.087	0.17	0.038 J	0.065	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.11
RCR-SB-6 (2.5 ft)	08/11/21	1.2	20	6.3	9.1	2.8	3.2	ND(0.066)	0.063 J	ND(0.066)	0.018 J	12
RCR-SB-6 (3 ft)	08/11/21	11	*32*	8.9	16	2.7	4.8	ND(0.41)	0.14 J	ND(0.41)	0.24 J	18
RCR-SB-6 (3 ft) Dup	08/11/21	12	*39*	5.9	15	2.2	3.6	ND(0.065)	ND(0.065)	ND(0.065)	0.26	19
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.055)	ND(0.082)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	0.012 J	0.017 J
RCR-SS1 (1 ft)	08/12/21	0.054	ND(0.069)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.0051 J	ND(0.069)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.055)	ND(0.083)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.055)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.059)	ND(0.089)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.059)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.062)	ND(0.093)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.062)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
NMED Industrial SSL		NA	134.2	NA	NA	NA	NA	51,300	NA	628.8	61,340	4,275
NMED Residential SSL		NA	22.598	NA	NA	NA	NA	7,260	NA	337	5,230	871
NMED Construction Worker SSL		NA	1,110	NA	NA	NA	NA	10,200	NA	7,910	14,000	798

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Bromobenzene (mg/kg)	Bromoform (mg/kg)	Carbon Disulfide (mg/kg)	Carbon tetrachloride (mg/kg)	4-Chlorotoluene (mg/kg)	1,2-Dibromo-3-chloropropane (mg/kg)	Dibromochloromethane (mg/kg)	Dibromomethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.057)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.033)	ND(0.33)	ND(0.033)	ND(0.033)	ND(0.066)	ND(0.033)	ND(0.033)	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.032)	ND(0.32)	ND(0.032)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.16)	ND(1.6)	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.05)	ND(0.5)	ND(0.05)	ND(0.05)	*ND(0.1)* *	ND(0.05)	ND(0.05)	ND(0.05)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.055)	ND(0.55)	ND(0.055)	ND(0.055)	*ND(0.11)* *	ND(0.055)	ND(0.055)	ND(0.055)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.054)	ND(0.54)	ND(0.054)	ND(0.054)	*ND(0.11)* *	ND(0.054)	ND(0.054)	ND(0.054)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.048)	ND(0.48)	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.051)	ND(0.51)	ND(0.051)	ND(0.051)	*ND(0.1)* *	ND(0.051)	ND(0.051)	ND(0.051)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	ND(0.34)	ND(0.034)	ND(0.034)	ND(0.068)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.074)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.058)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.075)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	ND(0.49)	ND(0.049)	ND(0.049)	*ND(0.098)* *	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.35)	ND(0.035)	ND(0.035)	ND(0.07)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	ND(0.39)	ND(0.039)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
NMED Industrial SSL		NA	1,760	8,541	52.5	NA	1.179	67.37	288.2	12,970
NMED Residential SSL		NA	674	1,550	10.7	NA	0.0858	13.9	57.9	2,150
NMED Construction Worker SSL		NA	23,700	1,620	252	NA	5.53	340	53.9	2,500

bgs- Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
J+ - Estimated concentration, possibly biased high
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
U - Evaluated to be undetected at the reported concentration

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,3-Dichlorobenzene (mg/kg)	1,4-Dichlorobenzene (mg/kg)	Dichlorodifluoromethane (mg/kg)	cis-1,2-Dichloroethene (mg/kg)	trans-1,2-Dichloroethene (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3-Dichloropropane (mg/kg)	1,1-Dichloropropene (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.057)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.066)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.064)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.32)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.1)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.11)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.11)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.059)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.1)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.068)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.074)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.058)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.075)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.098)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.07)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.077)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.061)
NMED Industrial SSL		NA	6,729	864.8	2,596	1,096	86.82	NA	NA
NMED Residential SSL		NA	1,290	182	156	210.19	17.8	NA	NA
NMED Construction Worker SSL		NA	45,900	161	708	206	415	NA	NA

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	trans-1,3-Dichloropropene (mg/kg)	Hexachlorobutadiene (mg/kg)	Methylene Chloride (mg/kg)	1,1,1,2-Tetrachloroethane (mg/kg)	1,2,3-Trichlorobenzene (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1,2-Trichloroethane (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.057)	ND(0.086)	ND(0.029)	ND(0.057)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.066)	ND(0.1)	ND(0.033)	ND(0.066)	ND(0.033)	ND(0.033)	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.064)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.32)	ND(0.47)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.1)	ND(0.15)	ND(0.05)	ND(0.1)	ND(0.05)	ND(0.05)	ND(0.05)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.11)	ND(0.16)	ND(0.055)	ND(0.11)	ND(0.055)	ND(0.055)	ND(0.055)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.11)	ND(0.16)	ND(0.054)	ND(0.11)	ND(0.054)	ND(0.054)	ND(0.054)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.059)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.097)	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.1)	ND(0.15)	ND(0.051)	ND(0.1)	ND(0.051)	ND(0.051)	ND(0.051)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.068)	ND(0.1)	ND(0.034)	ND(0.068)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.073)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.074)	ND(0.11)	ND(0.037)	ND(0.074)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.058)	ND(0.086)	ND(0.029)	ND(0.058)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.075)	ND(0.11)	ND(0.037)	ND(0.075)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.098)	ND(0.15)	ND(0.049)	ND(0.098)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.07)	ND(0.1)	ND(0.035)	ND(0.07)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.077)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.061)	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
NMED Industrial SSL		NA	52.08	5,131	137.2	NA	1,253	72,530	92.1
NMED Residential SSL		NA	68.3	766	28.1	NA	240	14,400	18.8
NMED Construction Worker SSL		NA	2,400	89,600	659	NA	8,540	13,600	4,300

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Trichloroethene (mg/kg)	Trichlorofluoromethane (mg/kg)	1,2,3-Trichloropropane (mg/kg)	Vinyl Chloride (mg/kg)	1,1,2,2-Tetrachloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	*ND(0.057)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.033)	*ND(0.066)* *	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	0.43	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.032)	*ND(0.064)* *	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	1.9	ND(0.032)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	49	ND(0.16)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.05)	*ND(0.1)* *	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	41	ND(0.05)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.055)	*ND(0.11)* *	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	56	ND(0.055)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.054)	*ND(0.11)* *	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	3.3	ND(0.054)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	*ND(0.059)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	5.9	ND(0.029)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	1.3	ND(0.048)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.051)	*ND(0.1)* *	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	0.54	ND(0.051)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	*ND(0.068)* *	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	0.011 J	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	*ND(0.073)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	*ND(0.074)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.013 J	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	*ND(0.058)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	0.16	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	*ND(0.075)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.013 J	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	*ND(0.098)* *	ND(0.049)	0.019 J	ND(0.049)	ND(0.049)	0.0071 J	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.035)	*ND(0.07)* *	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.027 J	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	*ND(0.077)* *	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	0.023 J	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	*ND(0.061)* *	ND(0.031)	0.017 J	ND(0.031)	ND(0.031)	0.019 J	ND(0.031)
NMED Industrial SSL		36.46	6,031	1.211	28.41	39.4	383.3	2,255	NA	3.309
NMED Residential SSL		15.5	1,230	0.051	0.742	7.98	78.6	440	NA	0.672
NMED Construction Worker SSL		5,370	1,130	8.26	161	197	1,820	424	NA	16.3

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,2-Dichloroethane (mg/kg)	1,3,5-Trimethylbenzene (mg/kg)	1-Methylnaphthalene (mg/kg)	2,2-Dichloropropane (mg/kg)	2-Butanone (mg/kg)	2-Chlorotoluene (mg/kg)	2-Hexanone (mg/kg)	2-Methylnaphthalene (mg/kg)	4-Methyl-2-Pentanone (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	ND(0.11)	ND(0.057)	ND(0.29)	ND(0.029)	ND(0.29)	ND(0.11)	ND(0.29)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	0.47	0.62	ND(0.066)	ND(0.33)	ND(0.033)	ND(0.33)	0.52	ND(0.33)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	1.4	2.9	ND(0.064)	ND(0.32)	ND(0.032)	ND(0.32)	3.2	ND(0.32)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	18	7.4	ND(0.32)	ND(1.6)	ND(0.16)	ND(1.6)	13	ND(1.6)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	14	5.9	ND(0.1)	ND(0.5)	ND(0.05)	ND(0.5)	11	ND(0.5)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	14	7	ND(0.11)	ND(0.55)	ND(0.055)	ND(0.55)	13	ND(0.55)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	0.22	3.8	ND(0.11)	ND(0.54)	ND(0.054)	ND(0.54)	3.9	ND(0.54)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	0.38	6.8	ND(0.059)	ND(0.29)	ND(0.029)	ND(0.29)	9.1	ND(0.29)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	0.3	1.6	ND(0.097)	ND(0.48)	ND(0.048)	ND(0.48)	0.65	ND(0.48)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	0.23	1.3	ND(0.1)	ND(0.51)	ND(0.051)	ND(0.51)	0.33	ND(0.51)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	ND(0.14)	ND(0.068)	ND(0.34)	ND(0.034)	ND(0.34)	ND(0.14)	ND(0.34)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	0.24	ND(0.073)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.15)	ND(0.074)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	0.051	ND(0.12)	ND(0.058)	ND(0.29)	ND(0.029)	ND(0.29)	0.044 J	ND(0.29)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.15)	ND(0.075)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	ND(0.2)	ND(0.098)	ND(0.49)	ND(0.049)	0.036J/ND(0.49)U	ND(0.2)	ND(0.49)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	0.0085 J	ND(0.14)	ND(0.07)	ND(0.35)	ND(0.035)	ND(0.35)	ND(0.14)	ND(0.35)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	ND(0.15)	ND(0.077)	ND(0.39)	ND(0.039)	ND(0.39)	ND(0.15)	ND(0.39)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	ND(0.12)	ND(0.061)	0.13J/ND(0.31)U	ND(0.031)	0.031J/ND(0.31)U	ND(0.12)	ND(0.31)
NMED Industrial SSL		40.67	NA	813	NA	411,000	25,960	NA	3,368	81,650
NMED Residential SSL		8.32	NA	172	NA	37,400	1,560	NA	232	5,810
NMED Construction Worker SSL		195	NA	6,060	NA	91,700	7,080	NA	1,000	20,200

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WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Acetone (mg/kg)	Benzene (mg/kg)	Bromodichloromethane (mg/kg)	Bromomethane (mg/kg)	Chlorobenzene (mg/kg)	Chloroethane (mg/kg)	Chloroform (mg/kg)	Chloromethane (mg/kg)	Cis-1,3-dichloropropene (mg/kg)	Ethylbenzene (mg/kg)	Isopropylbenzene (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.43)	ND(0.014)	ND(0.029)	ND(0.086)	ND(0.029)	ND(0.057)	ND(0.029)	ND(0.086)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.5)	0.013 J	ND(0.033)	ND(0.1)	ND(0.033)	ND(0.066)	ND(0.033)	ND(0.1)	ND(0.033)	0.18	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.48)	0.011 J	ND(0.032)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.096)	ND(0.032)	0.36	0.11
RCR-SS3 (0.5 ft)	08/12/21	ND(2.4)	4	ND(0.16)	ND(0.47)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.47)	ND(0.16)	16	1.5
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.75)	4	ND(0.05)	ND(0.15)	ND(0.05)	ND(0.1)	ND(0.05)	ND(0.15)	ND(0.05)	13	1.4
RCR-SS3 (1 ft)	08/12/21	ND(0.82)	6.3	ND(0.055)	ND(0.16)	ND(0.055)	ND(0.11)	ND(0.055)	ND(0.16)	ND(0.055)	20	1.8
RCR-SS4 (0.5 ft)	08/12/21	ND(0.8)	0.15	ND(0.054)	ND(0.16)	ND(0.054)	ND(0.11)	ND(0.054)	ND(0.16)	ND(0.054)	0.95	0.17
RCR-SS4 (1 ft)	08/12/21	ND(0.44)	0.17	ND(0.029)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.088)	ND(0.029)	1	0.3
RCR-SS5 (0.5 ft)	08/12/21	ND(0.73)	0.066	ND(0.048)	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.15)	ND(0.048)	0.33	0.043 J
RCR-SS5 (1 ft)	08/12/21	ND(0.76)	0.029	ND(0.051)	ND(0.15)	ND(0.051)	ND(0.1)	ND(0.051)	ND(0.15)	ND(0.051)	0.12	0.014 J
RCR-SS6 (0.5 ft)	08/12/21	ND(0.51)	ND(0.017)	ND(0.034)	ND(0.1)	ND(0.034)	ND(0.068)	ND(0.034)	ND(0.1)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.55)	ND(0.018)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.55)	ND(0.018)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.074)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.43)	ND(0.014)	ND(0.029)	ND(0.086)	ND(0.029)	ND(0.058)	ND(0.029)	ND(0.086)	ND(0.029)	0.026 J	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.56)	ND(0.019)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.075)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.74)	ND(0.025)	ND(0.049)	ND(0.15)	ND(0.049)	ND(0.098)	ND(0.049)	ND(0.15)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.52)	ND(0.017)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.07)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.58)	ND(0.019)	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.46)	ND(0.015)	0.0053 J	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.092)	ND(0.031)	ND(0.031)	ND(0.031)
NMED Industrial SSL		960,100	87.24	30.18	94.52	2,157	89,540	28.66	200.8	NA	367.6	14,220
NMED Residential SSL		66,300	17.8	6.19	17.7	378	19,000	5.9	41.1	NA	75.1	2,360
NMED Construction Worker SSL		242,000	423	143	17.9	412	16,600	134	956	NA	1,770	2,740

bgs- Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
J+ - Estimated concentration, possibly biased high
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
U - Evaluated to be undetected at the reported concentration

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	MTBE (mg/kg)	Naphthalene (mg/kg)	n-Butyl-benzene (mg/kg)	n-Propyl-benzene (mg/kg)	p-Isopropyl-toluene (mg/kg)	sec-Butylbenzene (mg/kg)	Styrene (mg/kg)	tert-Butylbenzene (mg/kg)	Tetrachloroethene (mg/kg)	Toluene (mg/kg)	Xylenes, Total (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.057)	ND(0.086)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.057)
RCR-SS2 (0.5 ft)	08/12/21	0.039	ND(0.066)	0.089 J	0.084	0.13	0.057	ND(0.033)	ND(0.033)	ND(0.033)	0.039	0.13
RCR-SS2 (1 ft)	08/12/21	0.098	0.64	0.47	0.41	0.41	0.32	ND(0.032)	0.01 J	ND(0.032)	0.0079 J	0.048 J
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	10	1.9	5.8	0.49	0.64	ND(0.16)	ND(0.16)	ND(0.16)	18	70
RCR-SS3 (0.5 ft) Dup	08/12/21	0.052	10	1.5	4.9	0.37	0.55	ND(0.05)	ND(0.05)	ND(0.05)	17	59
RCR-SS3 (1 ft)	08/12/21	0.1	13	1.9	6.6	0.48	0.67	0.022 J	ND(0.055)	ND(0.055)	23	85
RCR-SS4 (0.5 ft)	08/12/21	0.86	1.3	0.66	0.61	0.089	0.25	ND(0.054)	ND(0.054)	ND(0.054)	0.16	2.8
RCR-SS4 (1 ft)	08/12/21	1.4	2.4	1.5	1.3	0.18	0.56	ND(0.029)	ND(0.029)	ND(0.029)	0.27	1.9
RCR-SS5 (0.5 ft)	08/12/21	0.38	0.25	0.14 J	0.18	0.039 J	0.049	ND(0.048)	ND(0.048)	ND(0.048)	0.21	1.3
RCR-SS5 (1 ft)	08/12/21	0.47	ND(0.1)	0.077 J	0.069	0.035 J	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	0.089	0.56
RCR-SS6 (0.5 ft)	08/12/21	0.072	ND(0.068)	ND(0.1)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.068)
RCR-SS6 (1 ft)	08/12/21	0.076	ND(0.073)	0.037 J	0.0078 J	0.055	0.044	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.074)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.074)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	0.022 J	0.011 J	0.018 J	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	0.0069 J	0.13
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.075)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.0058 J	ND(0.075)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.098)	ND(0.15)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.098)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.07)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.035 J
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.077)	ND(0.12)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	0.0085 J	ND(0.077)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.061)	ND(0.092)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	0.0043 J	ND(0.061)
NMED Industrial SSL		NA	134.2	NA	NA	NA	NA	51,300	NA	628.8	61,340	4,275
NMED Residential SSL		NA	22.598	NA	NA	NA	NA	7,260	NA	337	5,230	871
NMED Construction Worker SSL		NA	1,110	NA	NA	NA	NA	10,200	NA	7,910	14,000	798

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J+ - Estimated concentration, possibly biased high
mg/kg - Milligrams per kilogram
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NMED - New Mexico Environment Department
SSL - Soil Screening Level
U - Evaluated to be undetected at the reported concentration

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4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Aniline (mg/kg)	Azobenzene (mg/kg)	Benzoic Acid (mg/kg)	Bis(2chloroethoxy)methane (mg/kg)	Bis(2-chloroethyl)ether (mg/kg)	Bis(2-chloroisopropyl)ether (mg/kg)	4-Bromophenylphenylether (mg/kg)	4-Chloro-3-Methylphenol (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	ND(49)	ND(250)	ND(49)	*ND(49)* *	ND(49)	ND(49)	ND(120)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(4)	ND(9.9)	ND(4)	*ND(4)* *	ND(4)	ND(4)	ND(9.9)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.7)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SB-2	08/11/21	ND(9.7)	ND(9.7)	ND(24)	ND(9.7)	*ND(9.7)* *	ND(9.7)	ND(9.7)	ND(24)
RCR-SB-2 (2 ft)	08/11/21	ND(200)	ND(200)	ND(490)	ND(200)	*ND(200)* *	ND(200)	ND(200)	ND(490)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(500)	ND(500)	ND(1200)	ND(500)	*ND(500)* *	ND(500)	ND(500)	ND(1200)
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(9.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2) *	ND(2)	ND(2)	ND(4.9)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.47)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.5)
RCR-SB-3	08/11/21	ND(1.9)	ND(1.9)	ND(9.5)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.7)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(9.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2) *	ND(2)	ND(2)	ND(5)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.49)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.49)
RCR-SB-4	08/11/21	ND(49)	ND(49)	ND(250)	ND(49)	***ND(49)*** *	ND(49)	ND(49)	ND(120)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	ND(48)	ND(240)	ND(48)	*ND(48)* *	ND(48)	ND(48)	ND(120)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2)	ND(10)	ND(2)	ND(2) *	ND(2)	ND(2)	ND(5)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.19)	ND(0.48)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.48)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.19)	ND(0.94)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.47)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.5)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.47)
RCR-SB-5	08/11/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.9)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(9.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.7)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2) *	ND(2)	ND(2)	ND(4.9)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	ND(9.8)	ND(25)	ND(9.8)	*ND(9.8)* *	ND(9.8)	ND(9.8)	ND(25)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2) *	ND(2)	ND(2)	ND(5)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2) *	ND(2)	ND(2)	ND(4.9)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.5)
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	ND(39)	ND(200)	ND(39)	*ND(39)* *	ND(39)	ND(39)	ND(99)
RCR-SB-6 (3 ft)	08/11/21	ND(100)	ND(100)	ND(250)	ND(100)	*ND(100)* *	ND(100)	ND(100)	ND(250)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	ND(200)	ND(500)	ND(200)	*ND(200)* *	ND(200)	ND(200)	ND(500)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(9.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.6)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.9)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(9.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.8)
NMED Industrial SSL		NA	NA	NA	NA	15.67	NA	NA	NA
NMED Residential SSL		NA	NA	NA	NA	3.11	NA	NA	NA
NMED Construction Worker SSL		NA	NA	NA	NA	1.95	NA	NA	NA

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	4-Chloroaniline (mg/kg)	2-Chloronaphthalene (mg/kg)	2-Chlorophenol (mg/kg)	4-Chlorophenylphenylether (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,3-Dichlorobenzene (mg/kg)	1,4-Dichlorobenzene (mg/kg)
RCR-SB-1	08/11/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(120)	ND(61)	ND(49)	ND(49)	ND(49)	ND(49)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(4.9)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(9.9)	ND(5)	ND(4)	ND(4)	ND(4)	ND(4)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(4.7)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(24)	ND(12)	ND(9.7)	ND(9.7)	ND(9.7)	ND(9.7)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(490)	ND(250)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(1200)	ND(620)	*ND(500)* *	ND(500)	ND(500)	ND(500)	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(4.9)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(4.9)	ND(2.4)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.47)	ND(0.24)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.5)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-3	08/11/21	ND(4.7)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.49)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-4	08/11/21	ND(120)	ND(62)	ND(49)	ND(49)	ND(49)	ND(49)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(120)	ND(61)	ND(48)	ND(48)	ND(48)	ND(48)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.48)	ND(0.24)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.47)	ND(0.24)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.5)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.47)	ND(0.23)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-5	08/11/21	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(4.7)	ND(2.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(25)	ND(12)	ND(9.8)	ND(9.8)	ND(9.8)	ND(9.8)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.5)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(99)	ND(49)	ND(39)	ND(39)	ND(39)	ND(39)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(250)	ND(120)	ND(100)	ND(100)	ND(100)	ND(100)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(500)	ND(250)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(4.6)	ND(2.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
NMED Industrial SSL		NA	103,800	6,489	NA	12,970	NA	6,729
NMED Residential SSL		NA	6,260	391	NA	2,150	NA	1,290
NMED Construction Worker SSL		NA	28,300	1,770	NA	2,500	NA	45,900

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	3,3-Dichlorobenzidine (mg/kg)	2,4-Dichlorophenol (mg/kg)	Dimethyl phthalate (mg/kg)	2-Methyl-4,6-dinitrophenol (mg/kg)	2,4-Dinitrophenol (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)	Hexachlorobenzene (mg/kg)
RCR-SB-1	08/11/21	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	*ND(61)* *	ND(98)	ND(49)	ND(98)	ND(120)	*ND(120)* *	*ND(120)* *	*ND(49)* *
RCR-SB-1 (4 ft)	08/11/21	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(5)	ND(7.9)	ND(4)	ND(7.9)	ND(9.9)	ND(9.9)	*ND(9.9)* *	*ND(4)* *
RCR-SB-1 (7.5 ft)	08/11/21	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.7)	ND(4.7)	*ND(4.7)* *	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
RCR-SB-2	08/11/21	*ND(12)* *	ND(19)	ND(9.7)	ND(19)	ND(24)	*ND(24)* *	***ND(24)*** *	*ND(9.7)* *
RCR-SB-2 (2 ft)	08/11/21	*ND(250)* *	*ND(390)* *	ND(200)	ND(390)	*ND(490)* *	*ND(490) UJ* *	*ND(490)* *	*ND(200)* *
RCR-SB-2 (2 ft) Dup	08/11/21	*ND(620)* *	*ND(990)* *	ND(500)	ND(990)	*ND(1200)* *	*ND(1200)* *	*ND(1200)* *	*ND(500)* *
RCR-SB-2 (2.5 ft)	08/11/21	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2.4)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.24)	ND(0.38)	ND(0.19)	ND(0.38)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.25)	ND(0.4)	ND(0.2)	ND(0.4)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.2)
RCR-SB-3	08/11/21	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.7)	ND(4.7)	*ND(4.7)* *	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.25)	ND(0.39)	ND(0.2)	ND(0.39)	ND(0.49)	ND(0.49)	ND(0.49)	ND(0.2)
RCR-SB-4	08/11/21	***ND(62)*** *	ND(99)	ND(49)	ND(99)	ND(120)	***ND(120)*** *	***ND(120)*** *	***ND(49)*** *
RCR-SB-4 (2 ft)	08/11/21	*ND(61)* *	ND(97)	ND(48)	ND(97)	ND(120)	*ND(120)* *	*ND(120)* *	*ND(48)* *
RCR-SB-4 (2.5 ft)	08/11/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.24)	ND(0.39)	ND(0.19)	ND(0.39)	ND(0.48)	ND(0.48) UJ	ND(0.48)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.24)	ND(0.38)	ND(0.19)	ND(0.38)	ND(0.47)	ND(0.47)	ND(0.47)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.25)	ND(0.4)	ND(0.2)	ND(0.4)	ND(0.5)	ND(0.5) UJ	ND(0.5)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.23)	ND(0.37)	ND(0.19)	ND(0.37)	ND(0.47)	ND(0.47) UJ	ND(0.47)	ND(0.19)
RCR-SB-5	08/11/21	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9) UJ	*ND(4.9)* *	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(2.3)	ND(3.7)	ND(1.9)	ND(3.7)	ND(4.7)	ND(4.7) UJ	*ND(4.7)* *	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9) UJ	*ND(4.9)* *	ND(2)
RCR-SB-5 (5 ft)	08/11/21	*ND(12)* *	ND(20)	ND(9.8)	ND(20)	ND(25)	*ND(25) UJ* *	*ND(25)* *	*ND(9.8)* *
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9) UJ	*ND(4.9)* *	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.25)	ND(0.4)	ND(0.2)	ND(0.4)	ND(0.5)	ND(0.5) UJ	ND(0.5)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	*ND(49)* *	ND(79)	ND(39)	ND(79)	ND(99)	*ND(99) UJ* *	*ND(99)* *	*ND(39)* *
RCR-SB-6 (3 ft)	08/11/21	*ND(120)* *	*ND(200)* *	ND(100)	ND(200)	*ND(250)* *	*ND(250) UJ* *	*ND(250)* *	*ND(100)* *
RCR-SB-6 (3 ft) Dup	08/11/21	*ND(250)* *	*ND(400)* *	ND(200)	ND(400)	*ND(500)* *	*ND(500)* *	*ND(500)* *	*ND(200)* *
RCR-SS1 (0.5 ft)	08/12/21	ND(2.3)	ND(3.7)	ND(1.9)	ND(3.7)	ND(4.6)	ND(4.6) UJ	*ND(4.6)* *	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8) UJ	*ND(4.8)* *	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *	ND(1.9)
NMED Industrial SSL		57.01	2,749	916,000	NA	1,833	82.27	17.15	16.03
NMED Residential SSL		11.8	185	61,600	NA	123	17.1	3.56	3.33
NMED Construction Worker SSL		410	807	279,000	NA	538	600	165	117

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Hexachlorobutadiene (mg/kg)	Hexachlorocyclopentadiene (mg/kg)	Hexachloroethane (mg/kg)	Isophorone (mg/kg)	2-Nitroaniline (mg/kg)	3-Nitroaniline (mg/kg)	4-Nitroaniline (mg/kg)	Nitrobenzene (mg/kg)	2-Nitrophenol (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	*ND(49)* *	ND(49)	ND(98)	ND(49)	ND(49)	ND(98)	*ND(98)* *	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	*ND(4)* *	ND(4)	ND(7.9)	ND(4)	ND(4)	ND(7.9)	ND(7.9)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(9.7)	*ND(9.7)* *	ND(9.7)	ND(19)	ND(9.7)	ND(9.7)	ND(19)	ND(19)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	*ND(200)* *	*ND(200)* *	*ND(200)* *	ND(390)	ND(200)	ND(200)	ND(390)	*ND(390)* *	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	*ND(500)* *	*ND(500)* *	*ND(500)* *	ND(990)	ND(500)	ND(500)	ND(990)	*ND(990)* *	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-3	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.39)	ND(0.2)	ND(0.2)	ND(0.39)	ND(0.39)	ND(0.2)
RCR-SB-4	08/11/21	ND(49)	*ND(49)* *	ND(49)	ND(99)	ND(49)	ND(49)	ND(99)	*ND(99)* *	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	*ND(48)* *	ND(48)	ND(97)	ND(48)	ND(48)	ND(97)	*ND(97)* *	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.39)	ND(0.19)	ND(0.19)	ND(0.39)	ND(0.39)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.37)	ND(0.19)
RCR-SB-5	08/11/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.7)	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	*ND(9.8)* *	ND(9.8)	ND(20)	ND(9.8)	ND(9.8)	ND(20)	ND(20)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	*ND(39)* *	ND(39)	ND(79)	ND(39)	ND(39)	ND(79)	*ND(79)* *	ND(39)
RCR-SB-6 (3 ft)	08/11/21	*ND(100)* *	*ND(100)* *	ND(100)	ND(200)	ND(100)	ND(100)	ND(200)	*ND(200)* *	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	*ND(200)* *	*ND(200)* *	*ND(200)* *	ND(400)	ND(200)	ND(200)	ND(400)	*ND(400)* *	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.7)	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
NMED Industrial SSL		52.08	5,492	641.4	27,010	NA	NA	NA	293.3	NA
NMED Residential SSL		68.3	2.3	133	5,610	NA	NA	NA	60.4	NA
NMED Construction Worker SSL		2,400	867	4,670	198,000	NA	NA	NA	1,350	NA

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	4-Nitrophenol (mg/kg)	N-Nitrosodimethylamine (mg/kg)	N-Nitroso-di-n-propylamine (mg/kg)	N-Nitroso-diphenylamine (mg/kg)	Pentachlorophenol (mg/kg)	Pyridine (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)	2,4,5-Trichlorophenol (mg/kg)
RCR-SB-1	08/11/21	ND(2.4)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(61)	*ND(49) **	ND(49)	ND(49)	*ND(98) **	ND(98)	ND(49)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(2.4)	*ND(1.9) **	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(5)	*ND(4) **	ND(4)	ND(4)	ND(7.9)	ND(7.9)	ND(4)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(2.4)	*ND(1.9) **	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(2.4)	*ND(1.9) **	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(12)	***ND(9.7) ****	ND(9.7)	ND(9.7)	*ND(19) **	ND(19)	ND(9.7)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(250)	*ND(200) **	ND(200)	ND(200)	*ND(390) **	ND(390)	ND(200)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(620)	*ND(500) **	ND(500)	ND(500)	*ND(990) **	ND(990)	*ND(500) **	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(2.4)	*ND(1.9) **	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2.4)	*ND(2) **	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.24)	*ND(0.19) **	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)	ND(0.19)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.25)	*ND(0.2) **	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)	ND(0.2)
RCR-SB-3	08/11/21	ND(2.4)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(2.4)	*ND(1.9) **	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2.5)	*ND(2) **	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(2.4)	*ND(1.9) **	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.25)	*ND(0.2) **	ND(0.2)	ND(0.2)	ND(0.39)	ND(0.39)	ND(0.2)	ND(0.2)
RCR-SB-4	08/11/21	ND(62)	***ND(49) ****	ND(49)	ND(49)	***ND(99) ****	ND(99)	ND(49)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(61)	*ND(48) **	ND(48)	ND(48)	*ND(97) **	ND(97)	ND(48)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2.5)	*ND(2) **	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.24)	*ND(0.19) **	ND(0.19)	ND(0.19)	ND(0.39)	ND(0.39)	ND(0.19)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.24)	*ND(0.19) **	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)	ND(0.19)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.25)	*ND(0.2) **	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.23)	*ND(0.19) **	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.37)	ND(0.19)	ND(0.19)
RCR-SB-5	08/11/21	ND(2.5)	***ND(2) ****	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(2.3)	*ND(1.9) **	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2.5)	*ND(2) **	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(12)	*ND(9.8) **	ND(9.8)	ND(9.8)	*ND(20) **	ND(20)	ND(9.8)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2.5)	*ND(2) **	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2.5)	*ND(2) **	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.25)	*ND(0.2) **	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(49)	*ND(39) **	ND(39)	ND(39)	*ND(79) **	ND(79)	ND(39)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(120)	*ND(100) **	ND(100)	ND(100)	*ND(200) **	ND(200)	ND(100)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(250)	*ND(200) **	ND(200)	ND(200)	*ND(400) **	ND(400)	ND(200)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(2.3)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(2.4)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2.5)	***ND(2) ****	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(2.4)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(2.4)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(2.4)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(2.4)	***ND(1.9) ****	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)	ND(1.9)
NMED Industrial SSL		NA	0.503	NA	5,236	44.51	NA	1,253	91,630
NMED Residential SSL		NA	0.0234	NA	1,090	9.85	NA	240	6,160
NMED Construction Worker SSL		NA	3.66	NA	37,900	346	NA	8,540	26,900

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	2,4,6-Trichlorophenol (mg/kg)	2,4-Dimethylphenol (mg/kg)	2-Methylphenol (mg/kg)	3,4- Methylphenol (mg/kg)	Benzyl Alcohol (mg/kg)	Bis(2-ethylhexyl)phthalate (mg/kg)	Benzylbutylphthalate (mg/kg)	Carbazole (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	ND(74)	ND(98)	ND(49)	ND(49)	ND(120)	ND(49)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(6)	ND(7.9)	ND(4)	ND(4)	ND(9.9)	ND(4)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(2.8)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(9.7)	ND(15)	ND(19)	ND(9.7)	ND(9.7)	ND(24)	ND(9.7)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(200)	ND(300)	ND(390)	ND(200)	ND(200)	*ND(490)* *	ND(200)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	*ND(500)* *	ND(750)	ND(990)	ND(500)	ND(500)	*ND(1200)* *	ND(500)	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.9)	ND(1.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.28)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.3)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)
RCR-SB-3	08/11/21	ND(1.9)	ND(2.8)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	3.3 J	ND(2)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.29)	ND(0.39)	ND(0.2)	ND(0.2)	0.86	ND(0.2)	ND(0.2)
RCR-SB-4	08/11/21	ND(49)	ND(74)	ND(99)	ND(49)	ND(49)	ND(120)	ND(49)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	ND(73)	ND(97)	ND(48)	ND(48)	ND(120)	ND(48)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.29)	ND(0.39)	ND(0.19)	ND(0.19)	ND(0.48)	ND(0.19)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.28)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.3)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.28)	ND(0.37)	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)	ND(0.19)
RCR-SB-5	08/11/21	ND(2)	ND(3)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(2.8)	ND(3.7)	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(3)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	ND(15)	ND(20)	ND(9.8)	ND(9.8)	ND(25)	ND(9.8)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.3)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	ND(59)	ND(79)	ND(39)	ND(39)	ND(99)	ND(39)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(100)	ND(150)	ND(200)	ND(100)	ND(100)	ND(250)	ND(100)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	ND(300)	ND(400)	ND(200)	ND(200)	*ND(500)* *	ND(200)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(2.8)	ND(3.7)	ND(1.9)	ND(1.9)	ND(4.6)	ND(1.9)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)
NMED Industrial SSL		2,332.25	18,330	NA	NA	NA	1,832	NA	NA
NMED Residential SSL		484	1,230	NA	NA	NA	380	NA	NA
NMED Construction Worker SSL		17,000	5,380	NA	NA	NA	13,400	NA	NA

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Dibenzofuran (mg/kg)	Diethylphthalate (mg/kg)	Di-n-butylphthalate (mg/kg)	Di-n-octylphthalate (mg/kg)	Phenol (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	ND(120)	ND(98)	ND(98)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(4.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(9.9)	ND(7.9)	ND(7.9)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(4.7)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(9.7)	ND(24)	ND(19)	ND(19)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(200)	ND(490)	ND(390)	ND(390)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(500)	ND(1200)	ND(990)	ND(990)	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(4.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.47)	ND(0.38)	ND(0.38)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.5)	ND(0.4)	ND(0.4)	0.14 J
RCR-SB-3	08/11/21	ND(1.9)	ND(4.7)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.49)	ND(0.39)	ND(0.39)	ND(0.2)
RCR-SB-4	08/11/21	ND(49)	ND(120)	ND(99)	ND(99)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	ND(120)	ND(97)	ND(97)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.48)	ND(0.39)	ND(0.39)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.47)	0.32 J	ND(0.38)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.5)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.47)	0.27 J	ND(0.37)	ND(0.19)
RCR-SB-5	08/11/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(4.7)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	ND(25)	ND(20)	ND(20)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.5)	ND(0.4)	ND(0.4)	0.091 J
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	ND(99)	ND(79)	ND(79)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(100)	ND(250)	ND(200)	ND(200)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	ND(500)	ND(400)	ND(400)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(4.6)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
NMED Industrial SSL		NA	733,000	91,630	NA	274,900
NMED Residential SSL		NA	49,300	6,160	NA	18,500
NMED Construction Worker SSL		NA	215,000	26,900	NA	77,400

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Aniline (mg/kg)	Azobenzene (mg/kg)	Benzoic Acid (mg/kg)	Bis(2chloroethoxy)methane (mg/kg)	Bis(2-chloroethyl)ether (mg/kg)	Bis(2-chloroisopropyl)ether (mg/kg)	4-Bromophenylphenylether (mg/kg)	4-Chloro-3-Methylphenol (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(5)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(5)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	ND(39)	ND(190)	ND(39)	***ND(39)*** *	ND(39)	ND(39)	ND(96)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	ND(200)	ND(990)	ND(200)	***ND(200)*** *	ND(200)	ND(200)	ND(500)
RCR-SS3 (1 ft)	08/12/21	ND(39)	ND(39)	ND(190)	ND(39)	***ND(39)*** *	ND(39)	ND(39)	ND(96)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	ND(10)	ND(25)	ND(10)	*ND(10)* *	ND(10)	ND(10)	ND(25)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(3.9)	ND(9.7)	ND(3.9)	*ND(3.9)* *	ND(3.9)	ND(3.9)	ND(9.7)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	ND(20)	ND(49)	ND(20)	***ND(20)*** *	ND(20)	ND(20)	ND(49)
RCR-SS5 (1 ft)	08/12/21	ND(20)	ND(20)	ND(50)	ND(20)	***ND(20)*** *	ND(20)	ND(20)	ND(50)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(5)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(5)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.9)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.9)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.9)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2)	ND(10)	ND(2)	ND(2)	ND(2)	ND(2)	ND(5)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(9.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(4.6)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2)	ND(10)	ND(2)	ND(2)	ND(2)	ND(2)	ND(5)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)	ND(4.9)
NMED Industrial SSL		NA	NA	NA	NA	15.67	NA	NA	NA
NMED Residential SSL		NA	NA	NA	NA	3.11	NA	NA	NA
NMED Construction Worker SSL		NA	NA	NA	NA	1.95	NA	NA	NA

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	4-Chloroaniline (mg/kg)	2-Chloronaphthalene (mg/kg)	2-Chlorophenol (mg/kg)	4-Chlorophenylphenylether (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,3-Dichlorobenzene (mg/kg)	1,4-Dichlorobenzene (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(96)	ND(48)	ND(39)	ND(39)	ND(39)	ND(39)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(500)	ND(250)	ND(200)	ND(200)	ND(200)	ND(200)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(96)	ND(48)	ND(39)	ND(39)	ND(39)	ND(39)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(25)	ND(12)	ND(10)	ND(10)	ND(10)	ND(10)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(9.7)	ND(4.8)	ND(3.9)	ND(3.9)	ND(3.9)	ND(3.9)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(49)	ND(25)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(50)	ND(25)	ND(20)	ND(20)	ND(20)	ND(20)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(4.9)	ND(2.4)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(4.6)	ND(2.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(4.9)	ND(2.4)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)
NMED Industrial SSL		NA	103,800	6,489	NA	12,970	NA	6,729
NMED Residential SSL		NA	6,260	391	NA	2,150	NA	1,290
NMED Construction Worker SSL		NA	28,300	1,770	NA	2,500	NA	45,900

bgs - Below ground surface
Dup - Field duplicate
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J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	3,3-Dichlorobenzidine (mg/kg)	2,4-Dichlorophenol (mg/kg)	Dimethyl phthalate (mg/kg)	2-Methyl-4,6-dinitrophenol (mg/kg)	2,4-Dinitrophenol (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)	Hexachlorobenzene (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5) UJ	*ND(5)* *	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5) UJ	*ND(5)* *	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	*ND(48)* *	ND(77)	ND(39)	ND(77)	ND(96)	***ND(96) UJ*** *	***ND(96)*** *	***ND(39)*** *
RCR-SS3 (0.5 ft) Dup	08/12/21	***ND(250)*** *	*ND(400)* *	ND(200)	ND(400)	*ND(500)* *	***ND(500)*** *	***ND(500)*** *	***ND(200)*** *
RCR-SS3 (1 ft)	08/12/21	*ND(48)* *	ND(77)	ND(39)	ND(77)	ND(96)	***ND(96) UJ*** *	***ND(96)*** *	***ND(39)*** *
RCR-SS4 (0.5 ft)	08/12/21	*ND(12)* *	ND(20)	ND(10)	ND(20)	ND(25)	*ND(25) UJ* *	***ND(25)*** *	*ND(10)* *
RCR-SS4 (1 ft)	08/12/21	ND(4.8)	ND(7.7)	ND(3.9)	ND(7.7)	ND(9.7)	ND(9.7) UJ	*ND(9.7)* *	*ND(3.9)* *
RCR-SS5 (0.5 ft)	08/12/21	*ND(25)* *	ND(39)	ND(20)	ND(39)	ND(49)	*ND(49)* *	***ND(49)*** *	***ND(20)*** *
RCR-SS5 (1 ft)	08/12/21	*ND(25)* *	ND(40)	ND(20)	ND(40)	ND(50)	*ND(50)* *	***ND(50)*** *	***ND(20)*** *
RCR-SS6 (0.5 ft)	08/12/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2.4)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(2.3)	ND(3.7)	ND(1.9)	ND(3.7)	ND(4.6)	ND(4.6)	*ND(4.6)* *	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2.4)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *	ND(2)
NMED Industrial SSL		57.01	2,749	916,000	NA	1,833	82.27	17.15	16.03
NMED Residential SSL		11.8	185	61,600	NA	123	17.1	3.56	3.33
NMED Construction Worker SSL		410	807	279,000	NA	538	600	165	117

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Hexachlorobutadiene (mg/kg)	Hexachlorocyclopentadiene (mg/kg)	Hexachloroethane (mg/kg)	Isophorone (mg/kg)	2-Nitroaniline (mg/kg)	3-Nitroaniline (mg/kg)	4-Nitroaniline (mg/kg)	Nitrobenzene (mg/kg)	2-Nitrophenol (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	*ND(39)* *	ND(39)	ND(77)	ND(39)	ND(39)	ND(77)	*ND(77)* *	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	***ND(200)*** *	*ND(200)* *	*ND(200)* *	ND(400)	ND(200)	ND(200)	ND(400)	***ND(400)*** *	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(39)	*ND(39)* *	ND(39)	ND(77)	ND(39)	ND(39)	ND(77)	*ND(77)* *	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	*ND(10)* *	ND(10)	ND(20)	ND(10)	ND(10)	ND(20)	ND(20)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	*ND(3.9)* *	ND(3.9)	ND(7.7)	ND(3.9)	ND(3.9)	ND(7.7)	ND(7.7)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	*ND(20)* *	ND(20)	ND(39)	ND(20)	ND(20)	ND(39)	ND(39)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(20)	*ND(20)* *	ND(20)	ND(40)	ND(20)	ND(20)	ND(40)	ND(40)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.7)	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
NMED Industrial SSL		52.08	5,492	641.4	27,010	NA	NA	NA	293.3	NA
NMED Residential SSL		68.3	2.3	133	5,610	NA	NA	NA	60.4	NA
NMED Construction Worker SSL		2,400	867	4,670	198,000	NA	NA	NA	1,350	NA

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SSL - Soil Screening Level
UJ - Estimated reporting limit

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	4-Nitrophenol (mg/kg)	N-Nitrosodimethylamine (mg/kg)	N-Nitroso-di-n-propylamine (mg/kg)	N-Nitroso-diphenylamine (mg/kg)	Pentachlorophenol (mg/kg)	Pyridine (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)	2,4,5-Trichlorophenol (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(48)	***ND(39)*** *	ND(39)	ND(39)	***ND(77)*** *	ND(77)	ND(39)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(250)	***ND(200)*** *	ND(200)	ND(200)	***ND(400)*** *	ND(400)	ND(200)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(48)	***ND(39)*** *	ND(39)	ND(39)	***ND(77)*** *	ND(77)	ND(39)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(12)	***ND(10)*** *	ND(10)	ND(10)	*ND(20)* *	ND(20)	ND(10)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(4.8)	***ND(3.9)*** *	ND(3.9)	ND(3.9)	ND(7.7)	ND(7.7)	ND(3.9)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(25)	***ND(20)*** *	ND(20)	ND(20)	*ND(39)* *	ND(39)	ND(20)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(25)	***ND(20)*** *	ND(20)	ND(20)	*ND(40)* *	ND(40)	ND(20)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2.4)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(2.3)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2.4)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)	ND(2)
NMED Industrial SSL		NA	0.503	NA	5,236	44.51	NA	1,253	91,630
NMED Residential SSL		NA	0.0234	NA	1,090	9.85	NA	240	6,160
NMED Construction Worker SSL		NA	3.66	NA	37,900	346	NA	8,540	26,900

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
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2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	2,4,6-Trichlorophenol (mg/kg)	2,4-Dimethylphenol (mg/kg)	2-Methylphenol (mg/kg)	3,4- Methylphenol (mg/kg)	Benzyl Alcohol (mg/kg)	Bis(2-ethylhexyl)phthalate (mg/kg)	Benzylbutylphthalate (mg/kg)	Carbazole (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	ND(58)	ND(77)	ND(39)	ND(39)	ND(96)	ND(39)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	ND(300)	ND(400)	ND(200)	ND(200)	*ND(500)* *	ND(200)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(39)	ND(58)	ND(77)	ND(39)	ND(39)	ND(96)	ND(39)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	ND(15)	ND(20)	ND(10)	ND(10)	ND(25)	ND(10)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(5.8)	ND(7.7)	ND(3.9)	ND(3.9)	ND(9.7)	ND(3.9)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	ND(30)	ND(39)	ND(20)	ND(20)	ND(49)	ND(20)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(20)	ND(30)	ND(40)	ND(20)	ND(20)	ND(50)	ND(20)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(2.8)	ND(3.7)	ND(1.9)	ND(1.9)	ND(4.6)	ND(1.9)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2)
NMED Industrial SSL		2,332.25	18,330	NA	NA	NA	1,832	NA	NA
NMED Residential SSL		484	1,230	NA	NA	NA	380	NA	NA
NMED Construction Worker SSL		17,000	5,380	NA	NA	NA	13,400	NA	NA

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Dibenzofuran (mg/kg)	Diethylphthalate (mg/kg)	Di-n-butylphthalate (mg/kg)	Di-n-octylphthalate (mg/kg)	Phenol (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	ND(96)	ND(77)	ND(77)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	ND(500)	ND(400)	ND(400)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(39)	ND(96)	ND(77)	ND(77)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	ND(25)	ND(20)	ND(20)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(9.7)	ND(7.7)	ND(7.7)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	ND(49)	ND(39)	ND(39)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(20)	ND(50)	ND(40)	ND(40)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(4.9)	ND(4)	ND(4)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(4.6)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
NMED Industrial SSL		NA	733,000	91,630	NA	274,900
NMED Residential SSL		NA	49,300	6,160	NA	18,500
NMED Construction Worker SSL		NA	215,000	26,900	NA	77,400

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SSL - Soil Screening Level
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4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(g,h,i)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)
RCR-SB-1 (0 ft)	8/11/2021	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	0.0467	ND(0.0231)	ND(0.0231)
RCR-SB-1 (2.5 ft)	8/11/2021	0.0768	ND (0.0252)	0.0361	0.0394	0.0678	0.0896	0.156	0.298	0.286	0.0463	0.911
RCR-SB-1 (4 ft)	8/11/2021	1.59	ND (0.0121)	0.124	0.0452	0.0264	0.0444	ND (0.0121)	0.0154	ND (0.0121)	ND (0.0121)	0.0855
RCR-SB-1 (5 ft)	8/11/2021	0.111	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)
RCR-SB-1 (7.5 ft)	8/11/2021	0.386	0.0614	0.0497	0.045	0.0345	0.0182	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	0.05
RCR-SB-1 (8 ft)	8/11/2021	0.089	0.0355	0.0139	0.0128	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)
RCR-SB-2 (0 ft)	8/11/2021	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	0.0575	ND (0.0224)	ND (0.0224)
RCR-SB-2 (2 ft)	8/11/2021	4.24 J	ND (0.263)	1.73 J	0.342 J	0.417 J	0.689 J	ND (0.263) UJ	0.357 J	ND (0.263) UJ	ND (0.263)	1.69 J
RCR-SB-2 (2 ft) Dup	8/11/2021	12.9 J	ND (0.131)	5.29 J	1.08 J	1.41 J	*1.56 J*	0.612 J	0.811 J	0.444 J	ND (0.131)	5.23 J
RCR-SB-2 (2.5 ft)	8/11/2021	0.268	0.0545	0.0364	ND (0.0253)	ND (0.0253)	0.0489	ND (0.0253)	ND (0.0253)	0.0459	ND (0.0253)	ND (0.0253)
RCR-SB-2 (5 ft)	8/11/2021	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)
RCR-SB-2 (7.5 ft)	8/11/2021	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)
RCR-SB-2 (8 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-3 (0 ft)	8/11/2021	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	0.0395	0.24	ND (0.0222)	0.0275
RCR-SB-3 (2.5 ft)	8/11/2021	0.0301	0.0287	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	0.026	ND (0.0227)	ND (0.0227)
RCR-SB-3 (5 ft)	8/11/2021	0.0872	0.0545	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)
RCR-SB-3 (7.5 ft)	8/11/2021	0.0458	0.0138	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)
RCR-SB-3 (8 ft)	8/11/2021	0.0216	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)
RCR-SB-4 (0 ft)	8/11/2021	8.95	11.3	0.438	0.16	ND (0.106)	0.281	ND (0.106)	0.123	ND (0.106)	ND (0.106)	0.373
RCR-SB-4 (2 ft)	8/11/2021	1.9	2.88	0.124	0.0362	ND (0.0225)	ND (0.0225)	ND (0.0225)	ND (0.0225)	ND (0.0225)	ND (0.0225)	0.0276
RCR-SB-4 (2.5 ft)	8/11/2021	0.112	0.173	ND (0.0232)	ND (0.0232)	ND (0.0232)	0.0317	ND (0.0232)	ND (0.0232)	ND (0.0232)	ND (0.0232)	0.0318
RCR-SB-4 (5 ft)	8/12/2021	ND (0.0126) UJ	ND (0.0126) UJ	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-4 (5 ft) Dup	8/12/2021	0.332 J	0.534 J	0.0195	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)
RCR-SB-4 (7.5 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-4 (8 ft)	8/11/2021	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)
RCR-SB-5 (0 ft)	8/11/2021	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	0.0268	ND (0.0213)	ND (0.0213)
RCR-SB-5 (2.5 ft)	8/11/2021	ND (0.0219)	0.0243	ND (0.0219)	ND (0.0219)	ND (0.0219)	0.0756	0.33	0.217	0.215	ND (0.0219)	0.278
RCR-SB-5 (4 ft)	8/11/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0441
RCR-SB-5 (5 ft)	8/11/2021	0.0222 J	0.0406 J	ND (0.0118) UJ	ND (0.0118)	ND (0.0118)	0.0959 J	0.0908 J	0.109 J	0.0766 J	0.016 J	0.302 J
RCR-SB-5 (5 ft) Dup	8/11/2021	0.149 J	0.106 J	0.0652 J	ND (0.0212)	0.0348	0.543 J	*1.95 J*	0.704 J	0.519 J	0.148 J	2.67 J
RCR-SB-5 (7.5 ft)	8/11/2021	0.237	0.407	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	0.0171
RCR-SB-5 (8 ft)	8/11/2021	0.736	1.33	0.0211	0.0123	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)
RCR-SB-6 (0 ft)	8/11/2021	3.62	5.5	0.253	0.0811	0.068	ND (0.0111)	ND (0.0111)	ND (0.0111)	ND (0.0111)	ND (0.0111)	0.0465
RCR-SB-6 (2.5 ft)	8/11/2021	30.7	52.2	0.358	0.312	ND (0.241)	0.918	0.578	0.463	ND (0.241)	ND (0.241)	2.38
RCR-SB-6 (3 ft)	8/11/2021	43.1 J	68 J	0.945 J	0.538 J	0.34 J	0.96 J	0.549 J	0.314 J	ND (0.247) UJ	ND (0.247) UJ	2.12
RCR-SB-6 (3 ft) Dup	8/11/2021	84.2 J	146 J	4.28 J	2.34 J	19.9 J	*2.88 J*	*2.64 J*	1.21 J	1.02 J	1.12 J	3.12
RCR-SS1 (0.5 ft)	8/12/2021	0.104	0.153	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)
RCR-SS1 (1 ft)	8/12/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SS10 (0.5 ft)	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS10 (1 ft)	8/19/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)
RCR-SS10 (1 ft) Dup	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS11 (0.5 ft)	8/19/2021	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	0.0171	0.074	ND (0.0129)	0.0392
NMED Industrial SSL		813	3,368	50,520	NA	252,600	32.3	23.58	32.3	NA	322.9	3,229
NMED Residential SSL		172	232	3,480	NA	17,400	1.53	1.12	1.53	NA	15.3	153
NMED Construction Worker SSL		6,060	1,000	15,100	NA	75,300	240	173	240	NA	2,310	23,100

TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Dibenzo(a,h)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3-cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
RCR-SB-1 (0 ft)	8/11/2021	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)
RCR-SB-1 (2.5 ft)	8/11/2021	0.0803	0.15	ND (0.0252)	0.0776	ND (0.0252)	0.0337	0.788
RCR-SB-1 (4 ft)	8/11/2021	ND (0.0121)	0.0213	0.271	ND (0.0121)	0.0425	0.514	0.111
RCR-SB-1 (5 ft)	8/11/2021	ND (0.0122)	ND (0.0122)	0.0342	ND (0.0122)	0.019	0.102	ND (0.0122)
RCR-SB-1 (7.5 ft)	8/11/2021	ND (0.0124)	ND (0.0124)	0.279	ND (0.0124)	0.0318	0.537	0.0765
RCR-SB-1 (8 ft)	8/11/2021	ND (0.0125)	ND (0.0125)	0.0636	ND (0.0125)	ND (0.0125)	0.162	0.019
RCR-SB-2 (0 ft)	8/11/2021	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	0.0281
RCR-SB-2 (2 ft)	8/11/2021	*ND (0.263)**	0.458 J	2.07 J	ND (0.263)	0.441 J	3.41 J	2.05 J
RCR-SB-2 (2 ft) Dup	8/11/2021	*0.259*	1.39 J	6.78 J	0.189	1.14 J	8.75 J	6.49 J
RCR-SB-2 (2.5 ft)	8/11/2021	ND (0.0253)	ND (0.0253)	0.0618	ND (0.0253)	0.0545	0.177	0.0546
RCR-SB-2 (5 ft)	8/11/2021	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)
RCR-SB-2 (7.5 ft)	8/11/2021	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)
RCR-SB-2 (8 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-3 (0 ft)	8/11/2021	0.0419	ND (0.0222)	ND (0.0222)	0.0604	0.0321	ND (0.0222)	ND (0.0222)
RCR-SB-3 (2.5 ft)	8/11/2021	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)
RCR-SB-3 (5 ft)	8/11/2021	ND (0.0116)	ND (0.0116)	0.0149	ND (0.0116)	0.017	0.033	0.0153
RCR-SB-3 (7.5 ft)	8/11/2021	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	0.0126	ND (0.0115)
RCR-SB-3 (8 ft)	8/11/2021	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	0.012	ND (0.0115)
RCR-SB-4 (0 ft)	8/11/2021	ND (0.106)	ND (0.106)	0.717	ND (0.106)	1.98	1.47	0.367
RCR-SB-4 (2 ft)	8/11/2021	ND (0.0225)	ND (0.0225)	0.191	ND (0.0225)	0.261	0.31	0.0493
RCR-SB-4 (2.5 ft)	8/11/2021	ND (0.0232)	ND (0.0232)	ND (0.0232)	ND (0.0232)	0.0346	0.0768	0.0539
RCR-SB-4 (5 ft)	8/12/2021	ND (0.0126)	ND (0.0126)	ND (0.0126) UJ	ND (0.0126)	ND (0.0126) UJ	ND (0.0126) UJ	ND (0.0126) UJ
RCR-SB-4 (5 ft) Dup	8/12/2021	ND (0.0127)	ND (0.0127)	0.0353 J	ND (0.0127)	0.2 J	0.106 J	0.0266 J
RCR-SB-4 (7.5 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-4 (8 ft)	8/11/2021	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)
RCR-SB-5 (0 ft)	8/11/2021	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)
RCR-SB-5 (2.5 ft)	8/11/2021	0.0775	ND (0.0219)	ND (0.0219)	0.0727	0.0652	ND (0.0219)	0.0895
RCR-SB-5 (4 ft)	8/11/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0345
RCR-SB-5 (5 ft)	8/11/2021	0.0432 J	0.0128 J	ND (0.0118) UJ	0.0302 J	0.0337 J	ND (0.0118) UJ	0.362 J
RCR-SB-5 (5 ft) Dup	8/11/2021	*0.271 J*	0.111 J	0.0732 J	0.225 J	0.137 J	0.148 J	2.73 J
RCR-SB-5 (7.5 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	0.0154	ND (0.0126)	0.234	0.0352	ND (0.0126)
RCR-SB-5 (8 ft)	8/11/2021	ND (0.0123)	ND (0.0123)	0.0794	ND (0.0123)	0.561	0.162	0.0286
RCR-SB-6 (0 ft)	8/11/2021	ND (0.0111)	0.028	0.464	ND (0.0111)	0.871	0.634	0.0963
RCR-SB-6 (2.5 ft)	8/11/2021	*ND (0.241)* *	0.462	1.84	ND (0.241)	17.5	4.66	2.44
RCR-SB-6 (3 ft)	8/11/2021	*ND (0.247) UJ* *	0.464 J	3.54 J	ND (0.247) UJ	*26.6 J*	8.2 J	2.47 J
RCR-SB-6 (3 ft) Dup	8/11/2021	*0.518 J*	1.29 J	0.411 J	0.34 J	*50.6 J*	16.7 J	4.98 J
RCR-SS1 (0.5 ft)	8/12/2021	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	0.0821	0.0273	0.018
RCR-SS1 (1 ft)	8/12/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SS10 (0.5 ft)	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS10 (1 ft)	8/19/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)
RCR-SS10 (1 ft) Dup	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS11 (0.5 ft)	8/19/2021	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	0.022
NMED Industrial SSL		3.23	33,680	33,680	32.3	134.2	25,260	25,260
NMED Residential SSL		0.153	2,320	2,320	1.53	22.598	1,740	1,740
NMED Construction Worker SSL		24	10,000	10,000	240	633	7,530	7,530

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TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(g,h,i)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)
RCR-SS11 (1 ft)	8/19/2021	ND (0.0128)	0.0145	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0177	0.0164	0.022	0.174	ND (0.0128)	0.0557
RCR-SS2 (0.5 ft)	8/12/2021	0.604	0.421	0.0189	0.0188	ND (0.0128)	0.0341	0.0176	0.0254	0.0221	ND (0.0128)	0.102
RCR-SS2 (1 ft)	8/12/2021	6.56	6.91	ND (0.0263)	0.0983	ND (0.0263)	ND (0.0263)	ND (0.0263)	ND (0.0263)	ND (0.0263)	ND (0.0263)	0.088
RCR-SS3 (0.5 ft)	8/12/2021	11.2 J	16.5 J	0.548	ND (0.498)	ND (0.498)	ND (0.498)	ND (0.498)	ND (0.498)	ND (0.498) UJ	ND (0.498)	0.731 J
RCR-SS3 (0.5 ft) Dup	8/12/2021	0.143 J	0.221 J	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.026)	0.0787 J	ND (0.026)	0.102 J
RCR-SS3 (1 ft)	8/12/2021	18.2	32	0.613	0.28	ND (0.265)	ND (0.265)	ND (0.265)	ND (0.265)	ND (0.265)	ND (0.265)	0.574
RCR-SS4 (0.5 ft)	8/12/2021	2.9	2.88	0.225	0.104	0.0568	0.111	0.0346	0.0667	0.0781	ND (0.0142)	0.413
RCR-SS4 (1 ft)	8/12/2021	2.29	3.47	0.139	0.049	0.0493	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	0.0176
RCR-SS5 (0.5 ft)	8/12/2021	0.475	0.129	0.0502	0.0275	0.034	0.182	0.0841	0.0639	0.0759	0.0121	0.427
RCR-SS5 (1 ft)	8/12/2021	1.01	0.553	0.138	0.0426	0.0894	0.395	0.307	0.212	0.231	0.037	1.21
RCR-SS6 (0.5 ft)	8/12/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0198
RCR-SS6 (1 ft)	8/12/2021	0.0446	0.0192	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)
RCR-SS7 (0.5 ft)	8/12/2021	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	0.102	ND (0.0117)	0.0203
RCR-SS7 (1 ft)	8/12/2021	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	0.0287	ND (0.0119)	ND (0.0119)
RCR-SS8 (0.5 ft)	8/12/2021	ND (0.0138)	ND (0.0138)	ND (0.0138)	ND (0.0138)	0.0181	ND (0.0138)	ND (0.0138)	0.0169	0.115	ND (0.0138)	0.0269
RCR-SS8 (1 ft)	8/12/2021	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	0.062	ND (0.0121)	0.0145
RCR-SS9 (0.5 ft)	8/12/2021	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	0.073	ND (0.011)	0.0199
RCR-SS9 (1 ft)	8/12/2021	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231)	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ	0.0523 J	ND (0.0231) UJ	ND (0.0231) UJ
RCR-SS9 (1 ft) Dup	8/12/2021	13.3 J	21 J	1.51 J	0.779 J	4.08 J	0.163 J	0.298 J	0.164 J	0.126 J	0.152 J	1.07 J
NMED Industrial SSL		813	3,368	50,520	NA	252,600	32.3	23.58	32.3	NA	322.9	3,229
NMED Residential SSL		172	232	3,480	NA	17,400	1.53	1.12	1.53	NA	15.3	153
NMED Construction Worker SSL		6,060	1,000	15,100	NA	75,300	240	173	240	NA	2,310	23,100

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Dibenzo(a,h)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3-cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
RCR-SS11 (1 ft)	8/19/2021	0.025	0.015	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0183	0.0338
RCR-SS2 (0.5 ft)	8/12/2021	ND (0.0128)	0.0147	0.0728	ND (0.0128)	0.217	0.0284	0.177
RCR-SS2 (1 ft)	8/12/2021	ND (0.0263)	ND (0.0263)	0.475	ND (0.0263)	1.27	0.384	0.127
RCR-SS3 (0.5 ft)	8/12/2021	*ND (0.498)**	ND (0.498)	2 J	ND (0.498)	5.5 J	3.71 J	1.61 J
RCR-SS3 (0.5 ft) Dup	8/12/2021	ND (0.026)	ND (0.026)	ND (0.026) UJ	ND (0.026)	0.0767 J	0.0605 J	0.053 J
RCR-SS3 (1 ft)	8/12/2021	*ND (0.265)**	ND (0.265)	1.84	ND (0.265)	15	3.74	1.31
RCR-SS4 (0.5 ft)	8/12/2021	0.0343	0.0577	0.638	0.023	0.915	0.802	0.341
RCR-SS4 (1 ft)	8/12/2021	ND (0.0123)	0.0175	0.28	ND (0.0123)	0.61	0.514	0.0564
RCR-SS5 (0.5 ft)	8/12/2021	0.026	0.101	0.143	0.0229	0.0461	0.136	0.87
RCR-SS5 (1 ft)	8/12/2021	0.086	0.17	0.25	0.0683	0.178	0.479	1.68
RCR-SS6 (0.5 ft)	8/12/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0305
RCR-SS6 (1 ft)	8/12/2021	ND (0.0124)	ND (0.0124)	0.0285	ND (0.0124)	0.0181	0.0547	ND (0.0124)
RCR-SS7 (0.5 ft)	8/12/2021	ND (0.0117)	ND (0.0117)	ND (0.0117)	0.0167	ND (0.0117)	ND (0.0117)	0.016
RCR-SS7 (1 ft)	8/12/2021	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)
RCR-SS8 (0.5 ft)	8/12/2021	0.0144	ND (0.0138)	ND (0.0138)	0.0266	ND (0.0138)	ND (0.0138)	0.0229
RCR-SS8 (1 ft)	8/12/2021	0.0145	ND (0.0121)	ND (0.0121)	0.0217	ND (0.0121)	ND (0.0121)	0.0124
RCR-SS9 (0.5 ft)	8/12/2021	ND (0.011)	ND (0.011)	ND (0.011)	0.0146	ND (0.011)	ND (0.011)	0.0156
RCR-SS9 (1 ft)	8/12/2021	ND (0.0231)	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231)	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ
RCR-SS9 (1 ft) Dup	8/12/2021	0.0457	0.654 J	2.96 J	0.0326	14.1 J	3.57 J	1.97 J
NMED Industrial SSL		3.23	33,680	33,680	32.3	134.2	25,260	25,260
NMED Residential SSL		0.153	2,320	2,320	1.53	22.598	1,740	1,740
NMED Construction Worker SSL		24	10,000	10,000	240	633	7,530	7,530

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
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Notes:
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3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 4. METALS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Arsenic, Total (mg/kg)	Barium, Total (mg/kg)	Cadmium, Total (mg/kg)	Chromium, Total (mg/kg)	Lead, Total (mg/kg)	Mercury, Total (mg/kg)	Selenium, Total (mg/kg)	Silver, Total (mg/kg)
RCR-SB-1	08/11/21	1.4 J	450	ND(2)	36 J+	24	0.21 J+	1.3 J	ND(2)
RCR-SB-1 (2.5 ft)	08/11/21	3.7	320	ND(0.49)	60 J+	37	0.035 J+	0.73	ND(0.49)
RCR-SB-1 (4 ft)	08/11/21	0.79	410	ND(0.48)	13 J+	9.3	0.0054 J+	0.7	ND(0.48)
RCR-SB-1 (5 ft)	08/11/21	0.65	340	ND(0.48)	17 J+	12	0.0041 J+	0.84	ND(0.48)
RCR-SB-1 (7.5 ft)	08/11/21	0.59	310	ND(0.49)	20 J+	12	0.0035 J+	0.77	ND(0.49)
RCR-SB-1 (8 ft)	08/11/21	0.83	270	ND(0.52)	21 J+	13	0.0043 J+	0.87	ND(0.52)
RCR-SB-2	08/11/21	ND(5)	730	ND(5)	26 J+	25	0.094 J+	ND(5)	ND(1)
RCR-SB-2 (2 ft)	08/11/21	*ND(19)* *	340	ND(0.49)	47 J+	57	0.062 J+	ND(19)	ND(0.49)
RCR-SB-2 (2 ft) Dup	08/11/21	1.8	310	ND(0.98)	73	84	0.12 J+	1.8	ND(0.98)
RCR-SB-2 (2.5 ft)	08/11/21	*ND(20)* *	270	ND(20)	28 J+	16	0.029 J+	ND(20)	ND(0.5)
RCR-SB-2 (5 ft)	08/11/21	0.73	380	ND(0.49)	15 J+	12	0.0054 J+	0.82	ND(0.49)
RCR-SB-2 (7.5 ft)	08/11/21	0.69	230	ND(0.51)	20 J+	12	0.0045 J+	0.83	ND(0.51)
RCR-SB-2 (8 ft)	08/11/21	0.74	270	ND(0.52)	21 J+	13	0.005 J+	0.83	ND(0.52)
RCR-SB-3	08/11/21	0.87	460	ND(0.5)	19 J+	19	0.031 J+	0.75	ND(0.5)
RCR-SB-3 (2.5 ft)	08/11/21	0.73	460	ND(0.49)	16 J+	14	0.011 J+	0.78	ND(0.49)
RCR-SB-3 (5 ft)	08/11/21	0.73	420	ND(0.48)	13 J+	11	0.022 J+	0.65	ND(0.48)
RCR-SB-3 (7.5 ft)	08/11/21	0.85	470	ND(0.52)	11 J+	8.6	0.0082 J+	0.74	ND(0.52)
RCR-SB-3 (8 ft)	08/11/21	0.82	460	ND(0.49)	12 J+	7.7	0.012 J+	0.61	ND(0.49)
RCR-SB-4	08/11/21	2 J	450	ND(2)	87 J+	9.3	0.063 J+	2 J	ND(2)
RCR-SB-4 (2 ft)	08/11/21	1.5 J	930	ND(2)	20 J+	18	0.068 J+	2.9	ND(2)
RCR-SB-4 (2.5 ft)	08/11/21	0.97	490	ND(0.2)	19 J+	12	0.0084 J+	1.5	ND(0.2)
RCR-SB-4 (5 ft)	08/12/21	0.85 J	350	ND(1)	19	12	0.0063 J+	1.4	ND(1)
RCR-SB-4 (5 ft) Dup	08/12/21	0.93 J	320	ND(1)	21	13	0.0086 J+	2.2	ND(1)
RCR-SB-4 (7.5 ft)	08/11/21	0.97 J	300	ND(1.9)	21	14	0.0068 J+	1.7 J	ND(1.9)
RCR-SB-4 (8 ft)	08/11/21	0.75	390	ND(0.49)	18	13	0.0065 J+	0.78	ND(0.49)
RCR-SB-5	08/11/21	*ND(19)* *	650	ND(19)	43	40	0.08 J+	ND(19)	ND(19)
RCR-SB-5 (2.5 ft)	08/11/21	1.6 J	480	ND(2)	12	13	0.14 J+	1.5 J	ND(2)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	260	ND(2)	14	14	0.0087 J+	1.6 J	ND(2)
RCR-SB-5 (5 ft)	08/11/21	1.5 J	780 J	ND(2.1)	13 J	11 J	0.016 J+	1.4 J	ND(2.1)
RCR-SB-5 (5 ft) Dup	08/11/21	1 J	270 J	ND(1)	6 J	ND(20) UJ	0.012 J+	3.5 J	ND(1)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	280	ND(2)	22	15	0.0069 J+	1.7 J	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(2.1)	390	ND(2.1)	21	14	0.0072 J+	1.8 J	ND(2.1)
RCR-SB-6	08/11/21	1.5 J	380	ND(2)	18	60	0.13 J+	1.3 J	ND(2)
RCR-SB-6 (2.5 ft)	08/11/21	1.1 J	480	ND(1.9)	15	12	0.0081 J+	1.4 J	ND(1.9)
RCR-SB-6 (3 ft)	08/11/21	1.1 J	360	ND(2)	14	13	0.0089 J+	1.5 J	ND(2)
RCR-SB-6 (3 ft) Dup	08/11/21	1.1	390	ND(1)	16	14	0.01 J+	2	ND(1)
RCR-SS1 (0.5 ft)	08/12/21	ND(2)	360	ND(2)	14	11	0.0074 J+	1.3 J	ND(2)
RCR-SS1 (1 ft)	08/12/21	ND(2)	340	ND(2)	20	13	0.0083 J+	1.7 J	ND(2)
RCR-SS10 (0.5 ft)	08/19/21	1.2	370 J+	ND(0.49)	27 J+	15	0.39 J-	1.7	ND(0.49)

TABLE 4. METALS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Arsenic, Total (mg/kg)	Barium, Total (mg/kg)	Cadmium, Total (mg/kg)	Chromium, Total (mg/kg)	Lead, Total (mg/kg)	Mercury, Total (mg/kg)	Selenium, Total (mg/kg)	Silver, Total (mg/kg)
NMED Industrial SSL		35.88	254,700	417,000	504.6	800	NA	6,489	6,489
NMED Residential SSL		7.07	15,600	85,900	96.6	400	NA	391	391
NMED Construction Worker SSL		216	4,390	3,610	468	800	NA	1,750	1,770
TCLP SSL x20		100	2000	20	100	100	4	20	100
RCR-SS10 (1 ft)	08/19/21	0.89	280 J+	ND(0.51)	19 J+	10	0.011 J-	1.9	ND(0.51)
RCR-SS10 (1 ft) Dup	08/19/21	0.96	270 J+	ND(0.5)	17 J+	10	0.079 J-	1.8	ND(0.5)
RCR-SS11 (0.5 ft)	08/19/21	1.3	380 J+	ND(0.5)	36 J+	23	0.095 J-	1.9	ND(0.5)
RCR-SS11 (1 ft)	08/19/21	1	340 J+	ND(0.49)	30 J+	24	0.14 J-	1.8	ND(0.49)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	280	ND(2)	18	13	0.0084 J+	1.5 J	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	280	ND(2)	19	14	0.008 J+	1.6 J	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	1.1 J	360	ND(2.1)	15	66	0.2 J+	ND(2.1)	ND(2.1)
RCR-SS3 (0.5 ft) Dup	08/12/21	1.1	330	ND(1)	23	65	0.03 J+	1.8	ND(1)
RCR-SS3 (1 ft)	08/12/21	1.2 J	370	1.2 J	18	68	0.031 J+	1.1 J	ND(1.9)
RCR-SS4 (0.5 ft)	08/12/21	ND(2)	260	ND(2)	15	12	0.013 J+	1.4 J	ND(2)
RCR-SS4 (1 ft)	08/12/21	ND(2.1)	290	ND(2.1)	15	13	0.0069 J+	1.4 J	ND(2.1)
RCR-SS5 (0.5 ft)	08/12/21	1.4 J	200	ND(19)	11	10	0.013 J+	1.3 J	ND(19)
RCR-SS5 (1 ft)	08/12/21	1.3 J	540	ND(2)	14	24	0.017 J+	ND(2)	ND(2)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	270	ND(2)	17	11	0.01 J+	1.5 J	ND(2)
RCR-SS6 (1 ft)	08/12/21	1.2 J	270	ND(2)	19	11	0.0089 J+	2.1	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	1.4 J	390	ND(1.9)	31	30	0.1 J+	2	ND(1.9)
RCR-SS7 (1 ft)	08/12/21	1.3 J	370	ND(2)	26	15	0.14 J+	2.2	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	1.2 J	370	ND(1.9)	25	31	0.11 J+	2.1	ND(1.9)
RCR-SS8 (1 ft)	08/12/21	0.97	360	ND(0.97)	18	24	0.021 J+	2.2	ND(0.97)
RCR-SS9 (0.5 ft)	08/12/21	1.9	470	ND(1)	21	43	0.21 J+	2.1	ND(1)
RCR-SS9 (1 ft)	08/12/21	1.9	390	ND(0.96)	36	20	0.21 J+	1.6	ND(0.96)
RCR-SS9 (1 ft) Dup	08/12/21	1	320	ND(0.96)	22	16	0.043 J+	2.1	ND(0.96)
NMED Industrial SSL		35.88	254,700	417,000	504.6	800	NA	6,489	6,489
NMED Residential SSL		7.07	15,600	85,900	96.6	400	NA	391	391
NMED Construction Worker SSL		216	4,390	3,610	468	800	NA	1,750	1,770
TCLP SSL x20		100	2000	20	100	100	4	20	100

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
J+ - Estimated concentration, possibly biased high
J- - Estimated concentration, possibly biased low
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
TCLP - Toxicity Characteristic Leaching Procedure
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

TABLE 5. GENERAL CHEMISTRY, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Diesel Range Organics (mg/kg)	Gasoline Range Organics (mg/kg)	Oil Range Organics (mg/kg)
RCR-SB-1	08/11/21	37	ND(4.4)	160
RCR-SB-1 (2.5 ft)	08/11/21	*3300*	2.2 J	*1200*
RCR-SB-1 (4 ft)	08/11/21	770	9.6 J+	ND(48)
RCR-SB-1 (5 ft)	08/11/21	470	37 J+	ND(49)
RCR-SB-1 (7.5 ft)	08/11/21	490	*200*	ND(46)
RCR-SB-1 (8 ft)	08/11/21	*1200*	50	ND(440)
RCR-SB-2	08/11/21	650	ND(4.8)	970
RCR-SB-2 (2 ft)	08/11/21	*24000 J*	43	*5300 J*
RCR-SB-2 (2 ft) Dup	08/11/21	*46000 J*	34	*9500 J*
RCR-SB-2 (2.5 ft)	08/11/21	130	*270*	220
RCR-SB-2 (5 ft)	08/11/21	24	ND(5)	ND(45)
RCR-SB-2 (7.5 ft)	08/11/21	ND(9.9)	9.4	ND(49)
RCR-SB-2 (8 ft)	08/11/21	ND(9.3)	10	ND(47)
RCR-SB-3	08/11/21	150	100	200
RCR-SB-3 (2.5 ft)	08/11/21	150	4.2	180
RCR-SB-3 (5 ft)	08/11/21	6.4 J	5 J+	ND(49)
RCR-SB-3 (7.5 ft)	08/11/21	14	3 J	ND(48)
RCR-SB-3 (8 ft)	08/11/21	6.3 J	1.5 J	ND(45)
RCR-SB-4	08/11/21	***4000***	*190*	*1700*
RCR-SB-4 (2 ft)	08/11/21	*3300*	*230*	*3000*
RCR-SB-4 (2.5 ft)	08/11/21	280	16	310
RCR-SB-4 (5 ft)	08/12/21	ND(9.6)	9	ND(48)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(9.9)	6.6	ND(50)
RCR-SB-4 (7.5 ft)	08/11/21	ND(9.3)	2.9 J	ND(47)
RCR-SB-4 (8 ft)	08/11/21	ND(9.8)	5.4	ND(49)
RCR-SB-5	08/11/21	120	ND(4.6)	320
RCR-SB-5 (2.5 ft)	08/11/21	110	40	430
RCR-SB-5 (4 ft)	08/11/21	31	93	91
RCR-SB-5 (5 ft)	08/11/21	*1200 J*	54	*3600*
RCR-SB-5 (5 ft) Dup	08/11/21	710 J	55	*2200*
RCR-SB-5 (7.5 ft)	08/11/21	9.5 J	*270*	ND(49)
RCR-SB-5 (8 ft)	08/11/21	290	*350*	ND(49)
RCR-SB-6	08/11/21	170	2.8 J+	590
RCR-SB-6 (2.5 ft)	08/11/21	*11000*	*290*	ND(980)
RCR-SB-6 (3 ft)	08/11/21	*16000*	*1000*	ND(960)
RCR-SB-6 (3 ft) Dup	08/11/21	*18000*	*670*	*ND(2300)* *
RCR-SS1 (0.5 ft)	08/12/21	12	ND(2.7)	ND(48)
RCR-SS1 (1 ft)	08/12/21	18	ND(3.5)	ND(49)
RCR-SS10 (0.5 ft)	08/19/21	ND(9.7)	ND(2.8)	ND(48)
RCR-SS10 (1 ft)	08/19/21	ND(9.5)	ND(3)	ND(47)
RCR-SS10 (1 ft) Dup	08/19/21	ND(8.7)	ND(3.1)	ND(44)
NMED Industrial SSL		3,000	500	3,800
NMED Residential SSL		1,000	100	1,000
NMED Construction Worker SSL		3,000	500	3,800

TABLE 5. GENERAL CHEMISTRY, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Diesel Range Organics (mg/kg)	Gasoline Range Organics (mg/kg)	Oil Range Organics (mg/kg)
RCR-SS11 (0.5 ft)	08/19/21	ND(9.9)	ND(2.6)	ND(49)
RCR-SS11 (1 ft)	08/19/21	13	ND(2.9)	68
RCR-SS2 (0.5 ft)	08/12/21	470	24	ND(48)
RCR-SS2 (1 ft)	08/12/21	430	74	ND(48)
RCR-SS3 (0.5 ft)	08/12/21	***7600***	***700***	ND(960)
RCR-SS3 (0.5 ft) Dup	08/12/21	***7600***	*420*	ND(990)
RCR-SS3 (1 ft)	08/12/21	***6700***	***770***	ND(930)
RCR-SS4 (0.5 ft)	08/12/21	*1500*	35	440
RCR-SS4 (1 ft)	08/12/21	770	73	ND(48)
RCR-SS5 (0.5 ft)	08/12/21	*1300*	24	ND(500)
RCR-SS5 (1 ft)	08/12/21	*2200 J+*	14	390 J+
RCR-SS6 (0.5 ft)	08/12/21	130	1.1 J	ND(50)
RCR-SS6 (1 ft)	08/12/21	51	11	ND(49)
RCR-SS7 (0.5 ft)	08/12/21	65	ND(3.7)	130
RCR-SS7 (1 ft)	08/12/21	ND(10)	3.8	ND(50)
RCR-SS8 (0.5 ft)	08/12/21	140	ND(3.7)	180
RCR-SS8 (1 ft)	08/12/21	82	1.6 J+	56
RCR-SS9 (0.5 ft)	08/12/21	110	ND(3.5)	86
RCR-SS9 (1 ft)	08/12/21	9.4 J	ND(3.9)	65
RCR-SS9 (1 ft) Dup	08/12/21	16	1.2 J	ND(47)
NMED Industrial SSL		3,000	500	3,800
NMED Residential SSL		1,000	100	1,000
NMED Construction Worker SSL		3,000	500	3,800

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
J+ - Estimated concentration, possibly biased high
mg/kg - Milligrams per kilogram
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

TABLE 6. SOIL ANALYTICAL RESULTS COMPARED TO NMED CONSTRUCTION DAF 20 SSL EXCEEDANCES, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (mg/kg)	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Benzene (mg/kg)	Benzo(a)anthracene (mg/kg)	Bromodichloromethane (mg/kg)	Chloroform (mg/kg)	Ethylbenzene (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	Toluene (mg/kg)
RCR-SB-1 (4 ft)	8/11/2021	8260B		**1.9**				**0.012**	**0.011**				
		8270D		**1.59**									
RCR-SB-1 (5 ft)	8/11/2021	8260B				**0.1**		**0.026**	**0.028**				
RCR-SB-1 (7.5 ft)	8/11/2021	8260B				**1.1**							
RCR-SB-1 (8 ft)	8/11/2021	8260B				**0.63**							
RCR-SB-2 (2 ft)	8/11/2021	8260B		**5.9**		**0.41**							
		8270D		**4.24**			**0.689**					**0.441**	
RCR-SB-2 (2.5 ft)	8/11/2021	8260B		**3.7**		**0.099**						**1.2**	
RCR-SB-2 (7.5 ft)	8/11/2021	8260B				**0.86**							
RCR-SB-2 (8 ft)	8/11/2021	8260B				**1.2**							
RCR-SB-3	8/11/2021	8260B				**0.58**						**0.12**	
RCR-SB-3 (2.5 ft)	8/11/2021	8260B				**0.13**							
RCR-SB-3 (5 ft)	8/11/2021	8260B						**0.0094**				**0.063**	
RCR-SB-3 (7.5 ft)	8/11/2021	8260B				**0.14**							
RCR-SB-3 (8 ft)	8/11/2021	8260B				**0.066**							
RCR-SB-4	8/11/2021	8260B		**22**	**29**	**0.87**						**4.2**	
		8270C		**32**	**41**								
		8270D		**8.95**	**11.3**							**1.98**	
RCR-SB-4 (2 ft)	8/11/2021	8260B		**17**	**32**	**1.7**						**4.7**	
		8270C			**26**								
		8270D		**1.9**	**2.88**							**0.261**	
RCR-SB-4 (2.5 ft)	8/11/2021	8260B				**0.36**					**1.3**	**0.1**	
RCR-SB-4 (5 ft)	8/12/2021	8260B				**0.63**					**1.5**		
RCR-SB-4 (7.5 ft)	8/11/2021	8260B				**0.5**					**2.3**		
RCR-SB-4 (8 ft)	8/11/2021	8260B				**0.43**					**2.1**		
RCR-SB-5 (2.5 ft)	8/11/2021	8260B				**7.5**					**0.64**		
		8270D										**0.0652**	
RCR-SB-5 (4 ft)	8/11/2021	8260B				**14**					**0.79**		
RCR-SB-5 (5 ft)	8/11/2021	8260B				**0.81**						**0.08**	
RCR-SB-5 (7.5 ft)	8/11/2021	8260B		**1.2**		**2.3**					**2.2**	**1.2**	
		8270D										**0.234**	
RCR-SB-5 (8 ft)	8/11/2021	8260B		**1.6**		**1.4**					**1.5**	**1.6**	
		8270C										**0.75**	
		8270D										**0.561**	
RCR-SB-6	8/11/2021	8260B										**0.17**	
		8270D		**3.62**	**5.5**							**0.871**	
RCR-SB-6 (2.5 ft)	8/11/2021	8260B		**25**	**42**	**0.25**					**1.2**	**20**	
		8270C		**40**	**65**							**33**	

TABLE 6. SOIL ANALYTICAL RESULTS COMPARED TO NMED CONSTRUCTION DAF 20 SSL EXCEEDANCES, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (mg/kg)	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Benzene (mg/kg)	Benzo(a)anthracene (mg/kg)	Bromodichloromethane (mg/kg)	Chloroform (mg/kg)	Ethylbenzene (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	Toluene (mg/kg)
		8270D		**30.7**	**52.2**		**0.918**					**17.5**	
		8260B		**38**	**65**	**4.4**				**34**	**11**	**32**	
RCR-SB-6 (3 ft)	8/11/2021	8270C		**70**	**110**							**57**	
		8270D		**43.1**	**68**		**0.96**					**26.6**	
RCR-SS1 (0.5 ft)	8/12/2021	8270D										**0.0821**	
RCR-SS2 (0.5 ft)	8/12/2021	8270D										**0.217**	
RCR-SS2 (1 ft)	8/12/2021	8260B		**2.9**	**3.2**							**0.64**	
		8270D		**6.56**	**6.91**							**1.27**	
		8260B		**7.4**	**13**	**4**				**16**		**10**	**18**
RCR-SS3 (0.5 ft)	8/12/2021	8270C		**21**	**35**							**24**	
		8270D		**11.2**	**16.5**							**5.5**	
		8260B		**7**	**13**	**6.3**				**20**		**13**	**23**
RCR-SS3 (1 ft)	8/12/2021	8270C		**23**	**39**							**26**	
		8270D		**18.2**	**32**							**15**	
RCR-SS4 (0.5 ft)	8/12/2021	8260B		**3.8**	**3.9**	**0.15**					**0.86**	**1.3**	
		8270D		**2.9**	**2.88**							**0.915**	
		8260B		**6.8**	**9.1**	**0.17**					**1.4**	**2.4**	
RCR-SS4 (1 ft)	8/12/2021	8270C		**4.7**	**6.6**							**2.1**	
		8270D		**2.29**	**3.47**							**0.61**	
RCR-SS5 (0.5 ft)	8/12/2021	8260B		**1.6**		**0.066**						**0.25**	
		8260B		**1.3**									
RCR-SS5 (1 ft)	8/12/2021	8270D		**1.01**								**0.178**	
		8260B	**0.019**										
2022 NMED Construction DAF 20 SSL			0.00481	0.893	2.76	0.0418	0.637	0.00621	0.0109	12.3	0.553	0.0583	12.1

DAF - Dilution attenuation factor

ft - foot or feet

ID - Identification

mg/kg - milligrams per kilogram

MTBE - Methyl tert-butyl ether

NMED - New Mexico Environment Department

SSL - Soil screening level

Notes:

Bolded results exceed the 2022 NMED Construction Worker DAF 20 SSL from Table A-1 in the 2022 NMED Risk Assesment Guidance for Site Investigation and Remediation (2022)

Method 8260B - Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C-Selected Ion Monitoring (SIM) - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270D - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

TABLE 7. GROUNDWATER ANALYTICAL RESULTS OF DETECTED CONSITUENT EXCEEDANCES IN NEARBY MONITORING/RECOVERY WELLS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (µg/L)	1-Methylnaphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Benzene (µg/L)	Benzo(a)anthracene (µg/L)	Bromodichloromethane (µg/L)	Chloroform (µg/L)	Ethylbenzene (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	Toluene (µg/L)
OW-58	9/30/2016	8260B	ND(100)	89	97	32,000		ND(50)		1,500	3,300	240	6,600
		8270C		65	71		ND(10)					160	
OW-58	11/7/2016	8260B	ND(40)	77	61	34,000		ND(20)		1,300	2,700	190	1,100
OW-58	3/29/2017	8260B	ND(200)	70	55	31,000		ND(100)	ND(100)	1,100	3,000	180	
		8270C		57	45		ND(10)					99	
OW-58	6/21/2017	8260B	ND(200)	85	68	38,000		ND(100)	ND(100)	1,200	3,700	150	
		8270C		82	60		ND(10)					120	
OW-58	9/19/2017	8260B	ND(200)	82	57	29,000		ND(100)	ND(100)	1,100	3,100	150	
		8270C		82	56		ND(10)					110	
OW-58	12/6/2017	8260B	ND(200)	38	ND(400)	32,000		ND(100)	ND(100)	1,200	2,900	110	
		8270C		82	53		ND(10)					120	
OW-58	2/20/2018	8260B	ND(200)	95	73	33,000		ND(100)	ND(100)	1,200	2,900	170	
		8270C		90	68		ND(10)					120	
OW-58	5/8/2018	8260B	ND(200)	100	54	38,000		ND(100)	ND(100)	1,200	2,800	170	
		8270C		74	42		ND(10)					99	
OW-58	8/28/2018	8260B	ND(100)	59	45	38,000		ND(50)		1,200	2,900	150	
		8270C		74	53		ND(10)					110	
OW-58	11/29/2018	8260B	ND(100)	60	42	35,000		ND(50)		1,200	2,500	160	
		8270C		ND(100)	ND(100)		ND(100)					ND(100)	
OW-58	3/28/2019	8260B	ND(200)	93	67	25,000		ND(100)	ND(100)	1,100	2,300	170	
		8270C		69	51		ND(10)					110	
OW-58	6/5/2019	8260B	ND(200)	110	79	34,000		ND(100)	ND(100)	1,200	2,300	200	
		8270C		85	61		ND(10)					140	
OW-58	8/22/2019	8260B	ND(100)	83	80	27,000		ND(50)		910	2,400	150	
		8270C		87	53		ND(10)					140	
OW-58	11/18/2019	8260B	ND(100)	78	53	33,000		ND(50)		1,200	2,100	180	
		8270D		86	72		ND(0.2)					180	
OW-58	9/17/2020	8260B	ND(200) UJ	ND(400) UJ	ND(400) UJ	27,000 J		ND(100) UJ	ND(100) UJ	1,300 J	1900 J	190 J	
OW-58	12/22/2020	8270C	ND(200)	ND(1000)	ND(2000)	33,000		ND(200) UJ	ND(200)	1,060	1,830	ND(200)	
OW-58	3/12/2021	8260B	ND(200)	98 J	110 J	33,000		ND(100)	ND(100)	1,200	1,900	230	
OW-58	6/23/2021	8260B	ND(200)	ND(400)	ND(400)	33,000		ND(100)	ND(100)	1,200	1,800	200 U	
OW-58	9/16/2021	8270C					ND(1)						
OW-58	12/14/2021	8260B		ND(400)	100 J	30,000				1,300	1,300	220	
		8270C		63	73							130	
OW-58	3/10/2022	8260B				26,000				1,200	1,000		
		8270C		74 J	83 J								
OW-58	6/29/2022	8260B				28,000				1,200	1,000		
		8270C		68 J	77 J		ND(0.3)					140 J	
OW-58	9/20/2022	8260B				31,000				1,200	1,000		
		8270C		69	79		ND(0.3)					140	
OW-58	12/14/2022	8260B				31,000				1,400	1,200		
		8270C		38	42		ND(0.3)					71 J	
OW-58	3/21/2023	8260B				32,000				1,400	1,000		
		8270C-SIM		67	80		ND(0.3)					150	

TABLE 7. GROUNDWATER ANALYTICAL RESULTS OF DETECTED CONSITUENT EXCEEDANCES IN NEARBY MONITORING/RECOVERY WELLS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (µg/L)	1-Methylnaphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Benzene (µg/L)	Benzo(a)anthracene (µg/L)	Bromodichloromethane (µg/L)	Chloroform (µg/L)	Ethylbenzene (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	Toluene (µg/L)
OW-58	6/15/2023	8260B				**32,000**				**1,300**	**1,400**		
		8270C-SIM		**72**	**82**		**ND(0.4)**					**150**	
OW-58	9/28/2023	8260B				**32,000**				**1,400**	**970**		
		8270C-SIM		**60**	**63**		**ND(0.4)**					**120**	
OW-58	12/21/2023	8260B				**31,000**				**1,400**			
		8270C-SIM		**87**	**95**		**ND(4)**				**830**	**180**	
OW-58A	3/6/2020	8260B	**ND(100)**	**140 J**	**210**	**9,700**		**ND(50)**			**2,800**	**250**	
		8270D		**130**	**190 J**		**ND(0.5)**					**250 J**	
OW-58A	9/18/2020	8260B	**ND(100)**	**120**	**180**	**6,900**		**ND(50)**			**2,500**	**280**	
OW-58A	12/23/2020	8260C	**ND(50)**	**ND(250)**	**ND(500)**	**6,070**		**ND(50)**			**2,430**	**127**	
OW-58A	3/12/2021	8260B	**ND(100)**	**120 J**	**180 J**	**7,700**		**ND(50)**			**2,500**	**250**	
OW-58A	6/23/2021	8260B	**ND(100)**	**120 J**	**120 J**	**6,800**		**ND(50)**			**2,600**	**260**	
OW-58A	9/16/2021	8270C		**74**	**60**							**120**	
OW-58A	12/14/2021	8260B		**140 J**	**160 J**	**6,900**					**2,500**	**250**	
		8270C		**90**	**79**							**160**	
OW-58A	3/10/2022	8260B				**6,300**					**2,300**		
		8270C		**91 J**	**89 J**								
OW-58A	6/29/2022	8260B				**6,500**					**2,300**		
		8270C		**100 J**	**97 J**		**ND(0.3)**					**190 J**	
OW-58A	9/20/2022	8260B				**8,900**				**1,000**	**2,200**		**6,300 J**
		8270C		**76**	**87**		**0.2 J**					**160**	
RW-1	8/23/2012	8260B	**ND(2000)**	**ND(4000)**	**ND(4000)**	**45,000**		**ND(1000)**	**ND(1000)**	**4,900**	**3,100**	**ND(2000)**	**82,000**
		8270C		**300**	**610**		**ND(10)**					**890**	
RW-1	9/16/2013	8260B	**ND(2000)**	**ND(4000)**	**ND(4000)**	**54,000**		**ND(1000)**	**ND(1000)**	**2,400**	**2,200**	**ND(2000)**	**35,000**
		8270C		**190**	**210**		**ND(10)**					**430**	
RW-1	9/18/2014	8260B	**ND(2000)**	**ND(4000)**	**ND(4000)**	**37,000**		**ND(1000)**	**ND(1000)**	**1,800**	**1,200**	**ND(2000)**	**35,000**
		8270C		**71**	**61**		**ND(10)**					**130**	
2022 NMED GW Cleanup Level			10	11.38	35.1	5	0.12	1.34	100	700	143	**30**	1,000
RW-01 max detect			--	300	610	54,000	--	--	--	4,900	3,100	890	82,000
OW-58 max detect			--	110	110	38,000	--	--	--	1,500	3,700	240	6,600
OW-58A max detect			--	140	210	9,700	0.2	--	--	1,000	2,800	280	6,300

GW - Groundwater

MTBE - Methyl tert-butyl ether

NMED - New Mexico Environment Department

µg/L - micrograms per Liter

Notes:

Bolded results exceed the 2022 NMED GW Cleanup Levels in Table A-1 from the 2022 NMED Risk Assesment Guidance for Site Investigation and Remediation (2022).

Method 8260B - Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C-Selected Ion Monitoring (SIM) - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270D - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

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TABLE 8. RAIL CAR LOADING AREA RELEASE INTERIM RESPONSE EVALUATION SUMMARY TABLE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Detected Constituent exceeding 2022 NMED Construction DAF 20 SSL	Number of samples with DAF exceedances	Order(s) of magnitude difference between maximum detected result and DAF SSL	Detected exceedance(s) in nearby wells (OW-58, OW-58A, RW-01)	Is there a need for an interim response to prevent the migration of the constituent to groundwater?
1,1,2,2-Tetrachloroethane	1	1	No	No. One sample location within one order of magnitude exceedance greater than DAF Screening Level.
1-Methylnaphthalene	17	2	Yes	No. Constituent detected in nearby monitoring wells
2-Methylnaphthalene	10	2	Yes	No. Constituent detected in nearby monitoring wells
Benzene	29	3	Yes	No. Constituent detected in nearby monitoring wells
Benzo(a)anthracene	3	0	Yes	No. Constituent detected in nearby monitoring well.
Bromodichloromethane	3	1	No	No. Three sample locations with exceedances only one order of magnitude greater than DAF Screening Level
Chloroform	2	0	No	No. Two sample locations with exceedances on the same order of magnitude as DAF Screening Level.
Ethylbenzene	3	0	Yes	No. Three sample locations on the same order of magnitude as DAF Screening Level. Also, consituent detected in nearby monitoring wells.
MTBE	12	2	Yes	No. Constituent detected in nearby monitoring wells
Naphthalene	23	3	Yes	No. Constituent detected in nearby monitoring wells
Toluene	2	0	Yes	No. Constituent detected in nearby monitoring wells. Also, only present in two sample locations on the same order of magnitude as DAF Screening Level

DAF - Dilution attenuation factor
MTBE - Methyl tert-butyl ether
NMED - New Mexico Environment Department
SSL - Soil screening level
Notes:
2022 NMED Construction Worker DAF 20 SSL from Table A-1 in the 2022 NMED Risk Assesment Guidance for Site Investigation and Remediation (2022)

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~~Attachment~~ Appendix A – Boring Logs

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-1

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 09:30	8/11/21 10:20

Type of Sampling Device	Water Level (bgs)	Final
5' Macrosampler	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Cloudy, humid, good temp. (66°)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-4' ~3' recovery	0	0.0
				medium-brown silty clay; cohesive, damp, soft; dark grey HC-staining from 1-4'; slight HC order @ surface becoming stronger w/ depth; highly plastic; occ. med-grained calcareous material towards 4'		
1					1	0.0
2			12		2	6.0
3					3	12.5
4				4-8' HC odor throughout	4	107.4
			5	4-6.5' SAA		
5					5	21.2
6				6.5-7' sandy-clayey-silt; dark grey-brown; cohesive; mildly plastic; damp-dry; no % VF-F sand, 20% clay, 60% silt	6	31.8
7				7-8' med-brown clay w/ occ. dark grey HC staining, occ. org. fragments & 1mm calcareous lenses	7	75.1
8					8	31.6
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-2

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 10:45	8/11/21 11:45

Type of Sampling Device	Water Level (bgs)	Final
Split Spoon + 5' Continuous Core	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Cloudy, slight breeze, good temp. (70°)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				SPLIT-SPOON 0-2' 0-1' med-brown sandy (10%)-silty (20%)-clay (70%); highly plastic; HC order slight ~1'; broke through limestone cobble 0-0.5'; soft	0	0.0
1			16	1-2' SAA but dark brown grey-black from HC staining; moist w/ tar; consistency of taffy; sheen; HC odor; sand VF-F, well-sorted	1	16.5
2				CONTINUOUS CORE 2-4' 1.5' recovery greyish-brown slightly silty-clay; HC staining & pockets of tar throughout; soft, highly plastic & cohesive, slight HC odor	2	274.7
3					3	17.3
4				4-8' HC odor throughout; uniform slightly silty-clay, med-brown, highly plastic & cohesive, moderately soft; occ. black HC staining throughout	4	0.9
5					5	0.1
6					6	1.1
7					7	3.6
					7.5	16.9
8					8	15.4
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1 LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-3

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 12:05	8/11/21 12:35

Type of Sampling Device	Water Level (bgs)	Final
Continuous Core	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Sunny, slightly breezy, good temp. (75°)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-4' HC odor throughout; ~2' recovery 0-0.5' dark brown-black HC-stained dry silty-clay w/ limestone gravel; dense, mildly plastic	0	16.7
1				0.5-2' SAA but w/o gravel	1	5.7
2			20	2-4' greyish-tan-brown sandy (25%)-silty (25%)-clay (50%); cohesive, non-plastic, dry; sand VF-F, moderately well-sorted	2	17.2
3					3	9.9
4				4-8' 4-6' brown silty-clay; mildly plastic, damp, cohesive; slight HC odor; occ. lenses w/ ~20% sand (VF-F)	4	0.8
5					5	8.2
6				6-7.5' black, saturated, HC-rich material of similar comp. to 2-4' interval; brick fragment 6-6.5'	6	14.7
7					7	33.2
8				7.5-8' poorly-sorted sand, F-C, subangular-subround, loose, damp, soft; very mixed minerology; HC stained grey-tan	8	60.2
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-4

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 13:30	8/11/21 14:00

Type of Sampling Device	Water Level (bgs)	Final
Continuous Core	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Hot, sunny, slightly breeze

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-0.5' asphalt topped w/ 1" thick of gravel road base; averaged through this section	0	98.1
				0.5-4' 2' recovery; slight HC odor throughout		
				0.5-2' ---> dense/med. brown silty (20%)-gravely (10%)-clay (70%); gravel angular-subangular, & up to 2 cm diam; dry; some dark grey HC staining		
1					1	120.8
2			35	2-4' ---> med. brown highly plastic silty-clay; moderately soft, cohesive; some dark grey HC staining	2	223.0
3					3	78.7
4				4-8' HC odor & dark grey staining throughout	4	8.3
				4-4.2' SAA but ~5% VF-F sand; moist		
				4.2-8' uniform, dense, cohesive, highly plastic med. brown silty-clay; occ. roots		
5					5	5.8
6					6	4.0
7					7	4.9
8					8	6.3
				8/12/2021 07:25 - going back down hole to grab 5' sample 0-4' solid flight auger 4-6' split spoon* *material consistent w/ that logged yesterday for same interval		
9				PID reading @ 5' today ~ 15.9ppm		

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-5

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 14:10	8/11/21 14:40

Type of Sampling Device	Water Level (bgs)	Final
Continuous Core / Split Spoon	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Hot, sunny, slightly breeze

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-4' 2' recoverv 0-1' ---> silty-sandy-clayey (30%) gravel (70%) up to 5 cm diam; mostly limestone, dry, loose, extremely poorly-sorted; brown to grey	0	0.0
1				1-2' ---> SAA but somewhat consolidated	1	0.0
2			39	2-4' ---> predominantly med-brown silty-clay; cohesive, dense, stiff; black HC staining, HC odor; layer (~0.5') of gravel/sand/silt/clay mix from 2.5-3', bottom 2" of section has ~10% content of VP sand	2	0.0
3					3	11.0
4				CONTINUOUS SPLIT SPOON 4-6' 4'-4.5' ---> med-brown silty-clay, very cohesive & plastic medium stiffness, occ. black HC staining, slight HC odor	4	369.8
5				4.5'-5.5' ---> silty (20%)-clayey (20%)-sandy (20%)-gravel (40%); very poorly sorted, reddish-brown to tan; HC odor; gravel up to 3 cm diam, mostly angular limestone, dry, loose	5	115.4
6				5.5'-6' ---> med-brown clay w/ occ. dark grey HC staining, strong HC odor; highly plastic, moderate stiffness, dense, cohesive	6	37.6
7				6-8' SAA CONTINUOUS	7	56.3
8					8	367.4
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-6

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
THC	Brian McLoughlin		3 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Hand Auger	Hand Auger	3"	8/11/21 14:45	8/11/21 15:10

Type of Sampling Device	Water Level (bgs)	Final
Hand Auger	ND feet-bgs	3'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Hot, sunny, breezy

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-0.75' dark brown clayey (20%)-sandy (10%)-silt (65%) w/ occ. gravel (5%); loose, soft; HC odor	0	107.7
1				0.75-1.5' strong HC odor, damp, cohesive mildly plastic; med-brown silty clay; med. stiffness; black HC staining; rare calcareous fragments up to 1 cm diam.	1	226.6
2				1.5-2.25' strong HC odor, damp, soft, mildly cohesive; med-brown clayey-silt; black HC staining throughout	2	877.0
3				2.25-3' moist w/ gasoline (yellow product visible on auger & w/in sample bag); overwhelming odor; otherwise SAA Concrete @ 3' ---> cannot continue any deeper	3	902.0
4					4	
5					5	
6					6	
7					7	
8					8	
9						

~~Attachment~~ Appendix B – Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

September 13, 2021

Brian McLoughlin

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL: (505) 722-3833
FAX

RE: Railcar Release Investigation OrderNo.: 2108A86

Dear Brian McLoughlin:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/19/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:45:00 AM
Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	4.8	9.7		mg/Kg	1	8/21/2021 4:50:57 PM	62104
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/21/2021 4:50:57 PM	62104
Surr: DNOP	116	0	70-130		%Rec	1	8/21/2021 4:50:57 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	0.24	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
Barium	370	4.9	9.7		mg/Kg	100	8/31/2021 5:22:18 PM	62196
Cadmium	ND	0.24	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
Chromium	27	0.49	0.97		mg/Kg	10	8/31/2021 5:27:33 PM	62196
Lead	15	0.97	1.9		mg/Kg	20	8/31/2021 12:16:27 PM	62196
Selenium	1.7	0.28	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
Silver	ND	0.24	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.39	0.013	0.16		mg/Kg	5	9/1/2021 1:26:40 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Chloronaphthalene	ND	0.93	2.5	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157

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EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157

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Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:45:00 AM
Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.0053	0.014		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Toluene	ND	0.0036	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Ethylbenzene	ND	0.0067	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Methyl tert-butyl ether (MTBE)	ND	0.016	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,4-Trimethylbenzene	ND	0.0039	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,3,5-Trimethylbenzene	ND	0.0062	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dichloroethane (EDC)	ND	0.0063	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dibromoethane (EDB)	ND	0.011	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Naphthalene	ND	0.010	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1-Methylnaphthalene	ND	0.032	0.11		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Methylnaphthalene	ND	0.026	0.11		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Acetone	ND	0.090	0.41		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromobenzene	ND	0.0059	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromodichloromethane	ND	0.0035	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromoform	ND	0.0067	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromomethane	ND	0.046	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Butanone	ND	0.12	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Carbon disulfide	ND	0.011	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Carbon tetrachloride	ND	0.0031	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chlorobenzene	ND	0.0050	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chloroethane	ND	0.010	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chloroform	ND	0.0039	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chloromethane	ND	0.0097	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Chlorotoluene	ND	0.0037	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159

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Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.015	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
cis-1,2-DCE	ND	0.014	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
cis-1,3-Dichloropropene	ND	0.0041	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dibromo-3-chloropropane	ND	0.012	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Dibromochloromethane	ND	0.0044	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Dibromomethane	ND	0.0065	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dichlorobenzene	ND	0.0057	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,3-Dichlorobenzene	ND	0.0052	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,4-Dichlorobenzene	ND	0.0074	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Dichlorodifluoromethane	ND	0.011	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1-Dichloroethane	ND	0.0080	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1-Dichloroethene	ND	0.0059	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dichloropropane	ND	0.0054	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,3-Dichloropropane	ND	0.0061	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2,2-Dichloropropane	ND	0.0039	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1-Dichloropropene	ND	0.0033	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Hexachlorobutadiene	ND	0.019	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Hexanone	ND	0.012	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Isopropylbenzene	ND	0.0051	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
4-Isopropyltoluene	ND	0.0071	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
4-Methyl-2-pentanone	ND	0.032	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Methylene chloride	ND	0.020	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
n-Butylbenzene	ND	0.0074	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
n-Propylbenzene	ND	0.0045	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
sec-Butylbenzene	ND	0.023	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Styrene	ND	0.0038	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
tert-Butylbenzene	ND	0.0064	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,1,2-Tetrachloroethane	ND	0.0041	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,2,2-Tetrachloroethane	ND	0.0089	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Tetrachloroethene (PCE)	ND	0.0076	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
trans-1,2-DCE	ND	0.0053	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
trans-1,3-Dichloropropene	ND	0.0065	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,3-Trichlorobenzene	ND	0.0043	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,4-Trichlorobenzene	ND	0.0096	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,1-Trichloroethane	ND	0.0061	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,2-Trichloroethane	ND	0.0069	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Trichloroethene (TCE)	ND	0.0054	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Trichlorofluoromethane	ND	0.0063	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,3-Trichloropropane	ND	0.012	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159

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Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0053	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Xylenes, Total	ND	0.015	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
Surr: 1,2-Dichloroethane-d4	113		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
Surr: Toluene-d8	104		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
Surr: 4-Bromofluorobenzene	105		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	0.77	2.8		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Surr: BFB	98.4	0	70-130		%Rec	1	8/26/2021 1:42:57 AM	62159

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	4.7	9.5		mg/Kg	1	8/21/2021 5:03:31 PM	62104
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/21/2021 5:03:31 PM	62104
Surr: DNOP	112	0	70-130		%Rec	1	8/21/2021 5:03:31 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.89	0.26	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
Barium	280	4.1	8.2		mg/Kg	80	9/2/2021 3:30:56 PM	62196
Cadmium	ND	0.26	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
Chromium	19	0.26	0.51		mg/Kg	5	8/31/2021 5:34:29 PM	62196
Lead	10	0.26	0.51		mg/Kg	5	8/31/2021 5:34:29 PM	62196
Selenium	1.9	0.29	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
Silver	ND	0.26	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.011	0.0027	0.034	J	mg/Kg	1	9/1/2021 1:05:04 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzoic acid	ND	1.2	9.7	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Chloro-3-methylphenol	ND	0.82	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Diethyl phthalate	ND	3.2	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dinitrophenol	ND	0.49	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157

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Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0057	0.015		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Toluene	ND	0.0038	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Ethylbenzene	ND	0.0072	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.017	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0042	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0066	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0067	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.012	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Naphthalene	ND	0.011	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1-Methylnaphthalene	ND	0.034	0.12		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Methylnaphthalene	ND	0.027	0.12		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Acetone	ND	0.096	0.44		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromobenzene	ND	0.0063	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromodichloromethane	ND	0.0038	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromoform	ND	0.0071	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromomethane	ND	0.049	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Butanone	ND	0.13	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Carbon disulfide	ND	0.012	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Carbon tetrachloride	ND	0.0033	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chlorobenzene	ND	0.0053	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chloroethane	ND	0.011	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chloroform	ND	0.0042	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chloromethane	ND	0.010	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Chlorotoluene	ND	0.0040	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS10 (1')
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
cis-1,2-DCE	ND	0.015	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
cis-1,3-Dichloropropene	ND	0.0044	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.013	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Dibromochloromethane	ND	0.0047	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Dibromomethane	ND	0.0069	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dichlorobenzene	ND	0.0061	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,3-Dichlorobenzene	ND	0.0056	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,4-Dichlorobenzene	ND	0.0079	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Dichlorodifluoromethane	ND	0.011	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1-Dichloroethane	ND	0.0086	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1-Dichloroethene	ND	0.0063	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dichloropropane	ND	0.0058	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,3-Dichloropropane	ND	0.0065	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2,2-Dichloropropane	ND	0.0042	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1-Dichloropropene	ND	0.0036	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Hexachlorobutadiene	ND	0.020	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Hexanone	ND	0.013	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Isopropylbenzene	ND	0.0055	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
4-Isopropyltoluene	ND	0.0076	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
4-Methyl-2-pentanone	ND	0.034	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Methylene chloride	ND	0.021	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
n-Butylbenzene	ND	0.0079	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
n-Propylbenzene	ND	0.0048	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
sec-Butylbenzene	ND	0.024	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Styrene	ND	0.0040	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
tert-Butylbenzene	ND	0.0068	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0043	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.0096	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Tetrachloroethene (PCE)	ND	0.0081	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
trans-1,2-DCE	ND	0.0057	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
trans-1,3-Dichloropropene	ND	0.0069	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0046	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,4-Trichlorobenzene	ND	0.010	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,1-Trichloroethane	ND	0.0065	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,2-Trichloroethane	ND	0.0074	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Trichloroethene (TCE)	ND	0.0058	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Trichlorofluoromethane	ND	0.0067	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,3-Trichloropropane	ND	0.012	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0056	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Xylenes, Total	ND	0.016	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Surr: Dibromofluoromethane	108		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
Surr: 1,2-Dichloroethane-d4	88.7		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
Surr: Toluene-d8	103		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
Surr: 4-Bromofluorobenzene	93.2		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.82	3.0		mg/Kg	1	8/30/2021 3:53:19 PM	B80915
Surr: BFB	98.7	0	70-130		%Rec	1	8/30/2021 3:53:19 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	9.9		mg/Kg	1	8/24/2021 3:32:21 PM	62104
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/24/2021 3:32:21 PM	62104
Surr: DNOP	113	0	70-130		%Rec	1	8/24/2021 3:32:21 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.3	0.25	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
Barium	380	5.0	10		mg/Kg	100	8/31/2021 5:48:21 PM	62196
Cadmium	ND	0.25	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
Chromium	36	0.50	1.0		mg/Kg	10	8/31/2021 5:51:48 PM	62196
Lead	23	0.50	1.0		mg/Kg	10	8/31/2021 5:51:48 PM	62196
Selenium	1.9	0.29	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
Silver	ND	0.25	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.095	0.0026	0.032		mg/Kg	1	9/1/2021 1:07:13 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0050	0.013		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Toluene	ND	0.0034	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Ethylbenzene	ND	0.0064	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.015	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0037	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0059	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0059	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.010	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Naphthalene	ND	0.0097	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1-Methylnaphthalene	ND	0.030	0.10		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Methylnaphthalene	ND	0.024	0.10		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Acetone	ND	0.085	0.39		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromobenzene	ND	0.0055	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromodichloromethane	ND	0.0033	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromoform	ND	0.0063	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromomethane	ND	0.043	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Butanone	ND	0.11	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Carbon disulfide	ND	0.011	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Carbon tetrachloride	ND	0.0029	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chlorobenzene	ND	0.0047	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chloroethane	ND	0.0098	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chloroform	ND	0.0037	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chloromethane	ND	0.0091	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Chlorotoluene	ND	0.0035	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS11 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
cis-1,2-DCE	ND	0.013	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
cis-1,3-Dichloropropene	ND	0.0039	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.011	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Dibromochloromethane	ND	0.0042	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Dibromomethane	ND	0.0061	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dichlorobenzene	ND	0.0054	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,3-Dichlorobenzene	ND	0.0049	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,4-Dichlorobenzene	ND	0.0070	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Dichlorodifluoromethane	ND	0.010	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1-Dichloroethane	ND	0.0076	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1-Dichloroethene	ND	0.0056	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dichloropropane	ND	0.0051	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,3-Dichloropropane	ND	0.0057	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2,2-Dichloropropane	ND	0.0037	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1-Dichloropropene	ND	0.0031	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Hexachlorobutadiene	ND	0.018	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Hexanone	ND	0.011	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Isopropylbenzene	ND	0.0048	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
4-Isopropyltoluene	ND	0.0067	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
4-Methyl-2-pentanone	ND	0.030	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Methylene chloride	ND	0.019	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
n-Butylbenzene	ND	0.0070	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
n-Propylbenzene	ND	0.0042	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
sec-Butylbenzene	ND	0.021	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Styrene	ND	0.0036	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
tert-Butylbenzene	ND	0.0060	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0038	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.0084	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Tetrachloroethene (PCE)	ND	0.0071	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
trans-1,2-DCE	ND	0.0050	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
trans-1,3-Dichloropropene	ND	0.0061	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0040	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,4-Trichlorobenzene	ND	0.0091	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,1-Trichloroethane	ND	0.0058	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,2-Trichloroethane	ND	0.0065	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Trichloroethene (TCE)	ND	0.0051	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Trichlorofluoromethane	ND	0.0059	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,3-Trichloropropane	ND	0.011	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0050	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Xylenes, Total	ND	0.014	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
Surr: 1,2-Dichloroethane-d4	92.5		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
Surr: Toluene-d8	98.6		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
Surr: 4-Bromofluorobenzene	98.8		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.72	2.6		mg/Kg	1	8/30/2021 5:19:47 PM	B80915
Surr: BFB	104	0	70-130		%Rec	1	8/30/2021 5:19:47 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	13	4.9	10		mg/Kg	1	8/24/2021 3:56:20 PM	62104
Motor Oil Range Organics (MRO)	68	50	50		mg/Kg	1	8/24/2021 3:56:20 PM	62104
Surr: DNOP	122	0	70-130		%Rec	1	8/24/2021 3:56:20 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.0	0.25	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
Barium	340	4.9	9.8		mg/Kg	100	8/31/2021 5:55:15 PM	62196
Cadmium	ND	0.25	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
Chromium	30	0.49	0.98		mg/Kg	10	8/31/2021 5:58:43 PM	62196
Lead	24	0.49	0.98		mg/Kg	10	8/31/2021 5:58:43 PM	62196
Selenium	1.8	0.28	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
Silver	ND	0.25	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.14	0.0028	0.035		mg/Kg	1	9/1/2021 1:09:23 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dichlorophenol	ND	0.78	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0055	0.014		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Toluene	ND	0.0037	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Ethylbenzene	ND	0.0070	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.016	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0041	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0064	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0065	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.011	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Naphthalene	ND	0.011	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1-Methylnaphthalene	ND	0.033	0.11		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Methylnaphthalene	ND	0.027	0.11		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Acetone	ND	0.094	0.43		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromobenzene	ND	0.0061	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromoform	ND	0.0069	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromomethane	ND	0.048	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Butanone	ND	0.12	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Carbon tetrachloride	ND	0.0032	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chlorobenzene	ND	0.0052	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chloroethane	ND	0.011	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chloroform	ND	0.0041	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chloromethane	ND	0.010	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Chlorotoluene	ND	0.0038	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
cis-1,2-DCE	ND	0.014	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
cis-1,3-Dichloropropene	ND	0.0043	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.012	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Dibromochloromethane	ND	0.0046	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Dibromomethane	ND	0.0067	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dichlorobenzene	ND	0.0060	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,3-Dichlorobenzene	ND	0.0054	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,4-Dichlorobenzene	ND	0.0077	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1-Dichloroethane	ND	0.0084	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1-Dichloroethene	ND	0.0062	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dichloropropane	ND	0.0056	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,3-Dichloropropane	ND	0.0063	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2,2-Dichloropropane	ND	0.0041	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1-Dichloropropene	ND	0.0035	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Hexachlorobutadiene	ND	0.020	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Isopropylbenzene	ND	0.0053	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
4-Isopropyltoluene	ND	0.0074	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
4-Methyl-2-pentanone	ND	0.033	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Methylene chloride	ND	0.021	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
n-Butylbenzene	ND	0.0077	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
n-Propylbenzene	ND	0.0046	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
sec-Butylbenzene	ND	0.024	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Styrene	ND	0.0039	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
tert-Butylbenzene	ND	0.0066	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0042	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.0093	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Tetrachloroethene (PCE)	ND	0.0079	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
trans-1,2-DCE	ND	0.0055	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
trans-1,3-Dichloropropene	ND	0.0067	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0044	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,1-Trichloroethane	ND	0.0063	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,2-Trichloroethane	ND	0.0072	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Trichloroethene (TCE)	ND	0.0056	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Trichlorofluoromethane	ND	0.0065	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,3-Trichloropropane	ND	0.012	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0055	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Xylenes, Total	ND	0.015	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Surr: Dibromofluoromethane	114		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
Surr: 1,2-Dichloroethane-d4	98.0		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
Surr: Toluene-d8	103		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
Surr: 4-Bromofluorobenzene	96.7		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.80	2.9		mg/Kg	1	8/30/2021 6:46:14 PM	B80915
Surr: BFB	108	0	70-130		%Rec	1	8/30/2021 6:46:14 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	4.3	8.7		mg/Kg	1	8/21/2021 5:53:44 PM	62104
Motor Oil Range Organics (MRO)	ND	44	44		mg/Kg	1	8/21/2021 5:53:44 PM	62104
Surr: DNOP	116	0	70-130		%Rec	1	8/21/2021 5:53:44 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.96	0.25	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
Barium	270	4.0	8.1		mg/Kg	80	9/2/2021 3:33:37 PM	62196
Cadmium	ND	0.25	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
Chromium	17	0.25	0.50		mg/Kg	5	8/31/2021 6:12:39 PM	62196
Lead	10	0.25	0.50		mg/Kg	5	8/31/2021 6:12:39 PM	62196
Selenium	1.8	0.29	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
Silver	ND	0.25	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.079	0.0026	0.033		mg/Kg	1	9/1/2021 1:11:33 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Isophorone	ND	0.79	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0060	0.016		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Toluene	ND	0.0040	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Ethylbenzene	ND	0.0076	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.018	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0044	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0070	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0071	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Naphthalene	ND	0.012	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1-Methylnaphthalene	ND	0.036	0.12		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Methylnaphthalene	ND	0.029	0.12		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Acetone	ND	0.10	0.47		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromobenzene	ND	0.0066	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromodichloromethane	ND	0.0040	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromoform	ND	0.0075	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromomethane	ND	0.052	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Butanone	ND	0.14	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Carbon tetrachloride	ND	0.0035	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chlorobenzene	ND	0.0056	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chloroethane	ND	0.012	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chloroform	ND	0.0044	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chloromethane	ND	0.011	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Chlorotoluene	ND	0.0042	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.013	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Dibromochloromethane	ND	0.0050	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Dibromomethane	ND	0.0073	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dichlorobenzene	ND	0.0065	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,3-Dichlorobenzene	ND	0.0059	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,4-Dichlorobenzene	ND	0.0083	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1-Dichloroethane	ND	0.0091	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1-Dichloroethene	ND	0.0067	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dichloropropane	ND	0.0061	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,3-Dichloropropane	ND	0.0068	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2,2-Dichloropropane	ND	0.0044	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1-Dichloropropene	ND	0.0038	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Hexachlorobutadiene	ND	0.021	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Hexanone	ND	0.014	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Isopropylbenzene	ND	0.0058	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
4-Isopropyltoluene	ND	0.0080	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Methylene chloride	ND	0.023	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
n-Butylbenzene	ND	0.0083	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
n-Propylbenzene	ND	0.0050	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
sec-Butylbenzene	ND	0.026	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Styrene	ND	0.0042	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
tert-Butylbenzene	ND	0.0072	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0046	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.010	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Tetrachloroethene (PCE)	ND	0.0085	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
trans-1,2-DCE	ND	0.0060	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
trans-1,3-Dichloropropene	ND	0.0073	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0048	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,1-Trichloroethane	ND	0.0069	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,2-Trichloroethane	ND	0.0078	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Trichloroethene (TCE)	ND	0.0061	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Trichlorofluoromethane	ND	0.0071	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,3-Trichloropropane	ND	0.013	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0059	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Xylenes, Total	ND	0.016	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Surr: Dibromofluoromethane	113		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
Surr: 1,2-Dichloroethane-d4	94.5		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
Surr: Toluene-d8	96.4		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
Surr: 4-Bromofluorobenzene	99.8		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.87	3.1		mg/Kg	1	8/30/2021 7:15:00 PM	B80915
Surr: BFB	101	0	70-130		%Rec	1	8/30/2021 7:15:00 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB7
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:45:00 AM
Lab ID: 2108A86-006 **Matrix:** AQUEOUS **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Toluene	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Naphthalene	ND	0.50	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Acetone	ND	2.5	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromobenzene	ND	0.28	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromoform	ND	0.31	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromomethane	ND	0.85	3.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2-Butanone	ND	2.0	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Carbon disulfide	ND	0.59	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chloroethane	ND	0.38	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chloroform	ND	0.13	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chloromethane	ND	0.41	3.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Dibromomethane	ND	0.31	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB7
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:45:00 AM
Lab ID: 2108A86-006 **Matrix:** AQUEOUS **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2-Hexanone	ND	1.8	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Styrene	ND	0.14	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/21/2021 7:09:00 PM	R80700
Surr: 1,2-Dichloroethane-d4	82.4	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R80700
Surr: 4-Bromofluorobenzene	98.9	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R80700
Surr: Dibromofluoromethane	83.9	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R80700
Surr: Toluene-d8	98.7	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R80700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Hall Environmental Analysis Lab	Work Order:	MBH1038
Address:	4901 Hawkins NE Suite D	Project:	2108A86
	Albuquerque, NM 87109	Reported:	9/13/2021 10:03
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2108A86-001A (RCR-SS10 (0.5))		
Lab/Sample Number:	MBH1038-01	Collect Date:	08/19/21 11:45
Date Received:	08/27/21 12:22	Collected By:	
Matrix:	Soil		

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	75.4	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Chrysene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Pyrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*76.4%*		*40-130*		*9/3/21 23:27*	*MAH*	*EPA 8270D*	

Anatek Labs, Inc.

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Analytical Results Report
(Continued)

Sample Location: 2108A86-002A (RCR-SS10 (1))
Lab/Sample Number: MBH1038-02 Collect Date: 08/19/21 11:50
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	77.9	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Chrysene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Pyrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*68.1%*		*40-130*		*9/3/21 22:40*	*MAH*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108A86-003A (RCR-SS11 (0.5))
Lab/Sample Number: MBH1038-03 Collect Date: 08/19/21 12:00
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	77.2	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo(g,h,i)perylene	0.0740	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[b]fluoranthene	0.0171	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Chrysene	0.0392	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Pyrene	0.0220	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*68.5%*		*40-130*		*9/3/21 23:51*	*MAH*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108A86-004A (RCR-SS11 (1))
Lab/Sample Number: MBH1038-04 Collect Date: 08/19/21 12:10
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	78.3	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
2-Methylnaphthalene	0.0145	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo(g,h,i)perylene	0.174	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[a]anthracene	0.0177	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[a]pyrene	0.0164	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[b]fluoranthene	0.0220	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Chrysene	0.0557	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Dibenz(a,h)anthracene	0.0250	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Fluoranthene	0.0150	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Phenanthrene	0.0183	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Pyrene	0.0338	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*69.9%*		*40-130*		*9/4/21 0:14*	*MAH*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108A86-005A (RCR-BD7)
Lab/Sample Number: MBH1038-05 Collect Date: 08/19/21 00:00
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	75.0	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Chrysene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Pyrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*66.4%*		*40-130*		*9/3/21 23:04*	*MAH*	*EPA 8270D*	

Authorized Signature,



Justin Doty For Todd Taruscio, Laboratory Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MDL	Method Detection Limit
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

This report shall not be reproduced except in full, without the written approval of the laboratory
The results reported related only to the samples indicated.

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Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0035 - SVOC Solid										
Blank (BBI0035-BLK1)				Prepared: 9/1/2021 Analyzed: 9/3/2021						
Naphthalene	ND		0.0100	mg/kg wet						
2-Methylnaphthalene	ND		0.0100	mg/kg wet						
1-Methylnaphthalene	ND		0.0100	mg/kg wet						
Acenaphthylene	ND		0.0100	mg/kg wet						
Acenaphthene	ND		0.0100	mg/kg wet						
Fluorene	ND		0.0100	mg/kg wet						
Phenanthrene	ND		0.0100	mg/kg wet						
Anthracene	ND		0.0100	mg/kg wet						
Fluoranthene	ND		0.0100	mg/kg wet						
Pyrene	ND		0.0100	mg/kg wet						
Benzo[a]anthracene	ND		0.0100	mg/kg wet						
Chrysene	ND		0.0100	mg/kg wet						
Benzo[b]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[k]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[a]pyrene	ND		0.0100	mg/kg wet						
Indeno(1,2,3-cd)pyrene	ND		0.0100	mg/kg wet						
Dibenz(a,h)anthracene	ND		0.0100	mg/kg wet						
Benzo(g,h,i)perylene	ND		0.0100	mg/kg wet						
Surrogate: Terphenyl-d14			*3.44*	*mg/kg wet*	*5.15*		*66.7*	*40-130*		
LCS (BBI0035-BS1)				Prepared: 9/1/2021 Analyzed: 9/3/2021						
Naphthalene	0.694		0.0100	mg/kg wet	1.00		69.4	32-133		
2-Methylnaphthalene	0.804		0.0100	mg/kg wet	1.00		80.4	45-138		
1-Methylnaphthalene	0.782		0.0100	mg/kg wet	1.00		78.2	47-135		
Acenaphthylene	0.904		0.0100	mg/kg wet	1.00		90.4	48-136		
Acenaphthene	0.749		0.0100	mg/kg wet	1.00		74.9	52-127		
Fluorene	0.857		0.0100	mg/kg wet	1.00		85.7	56-126		
Phenanthrene	0.745		0.0100	mg/kg wet	1.00		74.5	69-127		
Anthracene	0.803		0.0100	mg/kg wet	1.00		80.3	32-141		
Fluoranthene	0.758		0.0100	mg/kg wet	1.00		75.8	45-130		
Pyrene	0.739		0.0100	mg/kg wet	1.00		73.9	71-141		
Benzo[a]anthracene	0.737		0.0100	mg/kg wet	1.00		73.7	47-139		
Chrysene	0.740		0.0100	mg/kg wet	1.00		74.0	36-133		
Benzo[b]fluoranthene	0.684		0.0100	mg/kg wet	1.00		68.4	48-177		
Benzo[k]fluoranthene	0.783		0.0100	mg/kg wet	1.00		78.3	47-169		
Benzo[a]pyrene	0.748		0.0100	mg/kg wet	1.00		74.8	51-155		
Indeno(1,2,3-cd)pyrene	0.660		0.0100	mg/kg wet	1.00		66.0	66-166		
Dibenz(a,h)anthracene	0.701		0.0100	mg/kg wet	1.00		70.1	57-155		
Benzo(g,h,i)perylene	0.660		0.0100	mg/kg wet	1.00		66.0	49-165		
Surrogate: Terphenyl-d14			*3.53*	*mg/kg wet*	*5.15*		*68.6*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0035 - SVOC Solid (Continued)										
Matrix Spike (BBI0035-MS1)	**Source: MBH1038-02**			Prepared: 9/1/2021 Analyzed: 9/3/2021						
Naphthalene	0.799		0.0128	mg/kg dry	1.28	ND	62.3	30-140		
2-Methylnaphthalene	1.00		0.0128	mg/kg dry	1.28	ND	78.3	30-140		
1-Methylnaphthalene	0.949		0.0128	mg/kg dry	1.28	ND	73.9	30-140		
Acenaphthylene	1.12		0.0128	mg/kg dry	1.28	ND	87.2	30-140		
Acenaphthene	0.913		0.0128	mg/kg dry	1.28	ND	71.1	30-140		
Fluorene	1.07		0.0128	mg/kg dry	1.28	ND	83.5	30-140		
Phenanthrene	0.897		0.0128	mg/kg dry	1.28	ND	69.9	30-140		
Anthracene	0.960		0.0128	mg/kg dry	1.28	ND	74.8	30-140		
Fluoranthene	0.987		0.0128	mg/kg dry	1.28	ND	76.9	30-140		
Pyrene	0.967		0.0128	mg/kg dry	1.28	ND	75.4	30-140		
Benzo[a]anthracene	0.945		0.0128	mg/kg dry	1.28	ND	73.7	30-140		
Chrysene	0.953		0.0128	mg/kg dry	1.28	ND	74.3	30-140		
Benzo[b]fluoranthene	0.890		0.0128	mg/kg dry	1.28	ND	69.4	30-140		
Benzo[k]fluoranthene	0.949		0.0128	mg/kg dry	1.28	ND	74.0	30-140		
Benzo[a]pyrene	0.856		0.0128	mg/kg dry	1.28	ND	66.7	30-140		
Indeno(1,2,3-cd)pyrene	0.840		0.0128	mg/kg dry	1.28	ND	65.5	30-140		
Dibenz(a,h)anthracene	0.888		0.0128	mg/kg dry	1.28	ND	69.2	30-140		
Benzo(g,h,i)perylene	0.846		0.0128	mg/kg dry	1.28	ND	65.9	30-140		
Surrogate: Terphenyl-d14			*4.86*	*mg/kg dry*	*6.61*		*73.5*	*40-130*		
Matrix Spike Dup (BBI0035-MSD1)	**Source: MBH1038-02**			Prepared: 9/1/2021 Analyzed: 9/3/2021						
Naphthalene	0.824		0.0128	mg/kg dry	1.28	ND	64.2	30-140	3.10	50
2-Methylnaphthalene	1.07		0.0128	mg/kg dry	1.28	ND	83.1	30-140	5.98	50
1-Methylnaphthalene	0.984		0.0128	mg/kg dry	1.28	ND	76.6	30-140	3.62	50
Acenaphthylene	1.18		0.0128	mg/kg dry	1.28	ND	91.7	30-140	5.01	50
Acenaphthene	0.975		0.0128	mg/kg dry	1.28	ND	76.0	30-140	6.63	50
Fluorene	1.14		0.0128	mg/kg dry	1.28	ND	89.1	30-140	6.43	50
Phenanthrene	0.950		0.0128	mg/kg dry	1.28	ND	74.0	30-140	5.72	50
Anthracene	0.999		0.0128	mg/kg dry	1.28	ND	77.9	30-140	4.01	50
Fluoranthene	0.976		0.0128	mg/kg dry	1.28	ND	76.0	30-140	1.15	50
Pyrene	0.928		0.0128	mg/kg dry	1.28	ND	72.3	30-140	4.09	50
Benzo[a]anthracene	0.973		0.0128	mg/kg dry	1.28	ND	75.8	30-140	2.85	50
Chrysene	0.997		0.0128	mg/kg dry	1.28	ND	77.7	30-140	4.49	50
Benzo[b]fluoranthene	0.929		0.0128	mg/kg dry	1.28	ND	72.4	30-140	4.23	50
Benzo[k]fluoranthene	1.06		0.0128	mg/kg dry	1.28	ND	82.8	30-140	11.3	50
Benzo[a]pyrene	0.878		0.0128	mg/kg dry	1.28	ND	68.4	30-140	2.52	50
Indeno(1,2,3-cd)pyrene	0.913		0.0128	mg/kg dry	1.28	ND	71.1	30-140	8.28	50
Dibenz(a,h)anthracene	0.944		0.0128	mg/kg dry	1.28	ND	73.5	30-140	6.04	50
Benzo(g,h,i)perylene	0.901		0.0128	mg/kg dry	1.28	ND	70.2	30-140	6.31	50
Surrogate: Terphenyl-d14			*4.70*	*mg/kg dry*	*6.61*		*71.1*	*40-130*		

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Page 8 of 11

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

MBH1038

Due: 09/13/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**		PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**	
ADDRESS: **1282 Alturas Dr**			ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP: **Moscow, ID 83843**					

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108A86-001A	RCR-SS10 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 11:45:00 AM	1	J and MDL 8270 SIMS PAH
2	2108A86-002A	RCR-SS10 (1')	4OZGU	MeOH (Soil)	8/19/2021 11:50:00 AM	1	J and MDL 8270 SIMS PAH
3	2108A86-003A	RCR-SS11 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 12:00:00 PM	1	J and MDL 8270 SIMS PAH
4	2108A86-004A	RCR-SS11 (1')	4OZGU	MeOH (Soil)	8/19/2021 12:10:00 PM	1	J and MDL 8270 SIMS PAH
5	2108A86-005A	RCR-BD7	4OZGU	MeOH (Soil)	8/19/2021	1	J and MDL 8270 SIMS PAH

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/25/2021	Time: 9:40 AM	Received By:	Date: 8/26/2021	Time: 1222
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard X RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

Anatek Labs, Inc.

Sample Receipt and Preservation Form

MBH1038

Due: 09/13/21

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 4.7 Cooler Temp Corrected (°C): — Thermometer Used: IR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 5				

Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

none

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8270 PAH - 9402 x5

Received/Inspected By: CA Date/Time: 08/27/21 1222

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

MBH1038

Due: 09/13/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108A86-001A	RCR-SS10 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 11:45:00 AM	1	J and MDL 8270 SIMS PAH
2	2108A86-002A	RCR-SS10 (1')	4OZGU	MeOH (Soil)	8/19/2021 11:50:00 AM	1	J and MDL 8270 SIMS PAH
3	2108A86-003A	RCR-SS11 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 12:00:00 PM	1	J and MDL 8270 SIMS PAH
4	2108A86-004A	RCR-SS11 (1')	4OZGU	MeOH (Soil)	8/19/2021 12:10:00 PM	1	J and MDL 8270 SIMS PAH
5	2108A86-005A	RCR-BD7	4OZGU	MeOH (Soil)	8/19/2021	1	J and MDL 8270 SIMS PAH

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/25/2021	Time: 9:40 AM	Received By:	Date: 8/27/2021	Time: 1222
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard [X] RUSH Next BD [ ] 2nd BD [ ] 3rd BD [ ]

REPORT TRANSMITTAL DESIRED:

[ ] HARDCOPY (extra cost) [ ] FAX [ ] EMAIL [ ] ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

Anatek Labs, Inc.

Sample Receipt and Preservation Form

MBH1038

Due: 09/13/21

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 4.7 Cooler Temp Corrected (°C): — Thermometer Used: IR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 5				

Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

none

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8270 PAH - 9402 x5

Received/Inspected By: CA Date/Time: 08/27/21 1222

Form F19.00 - Eff 8 Feb 2019

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QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62196** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856182** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.20								
Cadmium	ND	0.20								
Lead	ND	0.20								
Selenium	ND	0.20								
Silver	ND	0.20								

Sample ID: **MSLLLCS-62196** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856183** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.11	0.20	0.1000	0	105	70	130			J

Sample ID: **MSLCS-62196** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856184** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	4.6	0.20	5.000	0	92.4	80	120			
Cadmium	4.4	0.20	5.000	0	87.8	80	120			
Lead	4.9	0.20	5.000	0	98.2	80	120			
Selenium	4.6	0.20	5.000	0	92.5	80	120			
Silver	2.4	0.20	2.500	0	97.5	80	120			

Sample ID: **2108A86-001AMSLL** SampType: **MS** TestCode: **EPA Method 6020: Metals**
Client ID: **RCR-SS10 (0.5')** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856188** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	5.2	0.49	4.901	1.181	81.6	70	130			
Cadmium	4.3	0.49	4.901	0	88.3	70	130			
Selenium	5.9	0.49	4.901	1.724	84.3	70	130			
Silver	2.2	0.49	2.450	0	90.9	70	130			

Sample ID: **2108A86-001AMSDL** SampType: **MSD** TestCode: **EPA Method 6020: Metals**
Client ID: **RCR-SS10 (0.5')** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856189** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	5.5	0.51	5.074	1.181	85.8	70	130	6.60	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108A86-001AMSDL** SampType: **MSD** TestCode: **EPA Method 6020: Metals**
Client ID: **RCR-SS10 (0.5')** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856189** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	4.4	0.51	5.074	0	86.3	70	130	1.20	20	
Selenium	5.9	0.51	5.074	1.724	82.9	70	130	1.23	20	
Silver	2.3	0.51	2.537	0	89.6	70	130	2.06	20	

Sample ID: **MSLLLCS-62196** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856215** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.10	0.20	0.1000	0	102	70	130			J
Cadmium	0.081	0.20	0.1000	0	81.1	70	130			J
Selenium	0.10	0.20	0.1000	0	105	70	130			J
Silver	0.11	0.20	0.1000	0	109	70	130			J

Sample ID: **MB-62196** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2858405** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.20								
Chromium	ND	0.20								

Sample ID: **MSLCS-62196** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2858407** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	5.2	0.20	5.000	0	103	80	120			
Chromium	4.7	0.20	5.000	0	93.6	80	120			

Sample ID: **MSLLLCS-62196** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2858408** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.14	0.20	0.1000	0	140	70	130			JS
Chromium	0.14	0.20	0.1000	0	140	70	130			JS

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62104**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **62104**	RunNo: **80715**
Prep Date: **8/20/2021**	Analysis Date: **8/21/2021**	SeqNo: **2847435** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		116	70	130			

Sample ID: **LCS-62104**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **62104**	RunNo: **80715**
Prep Date: **8/20/2021**	Analysis Date: **8/21/2021**	SeqNo: **2847438** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.6	68.9	141			
Surr: DNOP	5.0		5.000		100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62159** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851925** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	70	130			
Toluene	1.0	0.050	1.000	0	105	70	130			
Chlorobenzene	0.99	0.050	1.000	0	99.0	70	130			
1,1-Dichloroethene	0.98	0.050	1.000	0	98.3	70	130			
Trichloroethene (TCE)	0.97	0.050	1.000	0	97.4	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.56		0.5000		111	70	130			
Surr: Toluene-d8	0.50		0.5000		99.8	70	130			
Surr: 4-Bromofluorobenzene	0.53		0.5000		106	70	130			

Sample ID: **mb-62159** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62159** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62159** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.52		0.5000		103	70	130			
Surr: 1,2-Dichloroethane-d4	0.57		0.5000		113	70	130			
Surr: Toluene-d8	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		108	70	130			

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855839** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Chlorobenzene	1.1	0.050	1.000	0	106	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	102	70	130			
Trichloroethene (TCE)	0.93	0.050	1.000	0	92.6	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.3	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80915**	RunNo: **80915**
Prep Date:	Analysis Date: **8/30/2021**	SeqNo: **2855841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.51		0.5000		101	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.3	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.2	70	130			

Sample ID: **2108a86-003ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SS11 (0.5')** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855873** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.57	0.013	0.5216	0	109	70	130			
Toluene	0.54	0.026	0.5216	0	103	70	130			
Chlorobenzene	0.54	0.026	0.5216	0	104	70	130			
1,1-Dichloroethene	0.55	0.026	0.5216	0	105	49.9	132			
Trichloroethene (TCE)	0.52	0.026	0.5216	0	99.8	52.9	126			
Surr: Dibromofluoromethane	0.27		0.2608		102	70	130			
Surr: 1,2-Dichloroethane-d4	0.24		0.2608		92.5	70	130			
Surr: Toluene-d8	0.27		0.2608		103	70	130			
Surr: 4-Bromofluorobenzene	0.24		0.2608		92.9	70	130			

Sample ID: **2108a86-003amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SS11 (0.5')** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855874** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.53	0.013	0.5216	0	101	70	130	7.09	20	
Toluene	0.54	0.026	0.5216	0	104	70	130	0.343	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108a86-003amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SS11 (0.5')** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855874** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	0.54	0.026	0.5216	0	103	70	130	1.12	20	
1,1-Dichloroethene	0.53	0.026	0.5216	0	101	49.9	132	3.34	20	
Trichloroethene (TCE)	0.46	0.026	0.5216	0	88.8	52.9	126	11.6	20	
Surr: Dibromofluoromethane	0.25		0.2608		96.9	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.23		0.2608		90.0	70	130	0	0	
Surr: Toluene-d8	0.27		0.2608		105	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.25		0.2608		95.3	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng 8260 lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R80700** RunNo: **80700**
Prep Date: Analysis Date: **8/21/2021** SeqNo: **2848447** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.6	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	82.9	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	83.2	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		82.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	8.1		10.00		81.4	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R80700** RunNo: **80700**
Prep Date: Analysis Date: **8/21/2021** SeqNo: **2848599** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80700**	RunNo: **80700**
Prep Date:	Analysis Date: **8/21/2021**	SeqNo: **2848599** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80700**	RunNo: **80700**
Prep Date:	Analysis Date: **8/21/2021**	SeqNo: **2848599** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.2		10.00		82.4	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	8.2		10.00		81.7	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62157** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62157** RunNo: **80881**
Prep Date: **8/24/2021** Analysis Date: **8/27/2021** SeqNo: **2854276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	1.0								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62157** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62157** RunNo: **80881**
Prep Date: **8/24/2021** Analysis Date: **8/27/2021** SeqNo: **2854276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.7		3.330		80.6	20.3	74.1			S
Surr: Phenol-d5	3.5		3.330		104	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	2.9		3.330		86.4	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		77.6	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		84.6	21.5	90.1			
Surr: 4-Terphenyl-d14	1.7		1.670		103	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62157** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62157** RunNo: **80881**
Prep Date: **8/24/2021** Analysis Date: **8/27/2021** SeqNo: **2854277** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	86.4	22.9	109			
4-Chloro-3-methylphenol	2.8	0.50	3.330	0	85.4	24.2	109			
2-Chlorophenol	2.5	0.20	3.330	0	75.3	18.8	103			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	66.1	18.8	89.5			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	72.1	20.2	94.5			
N-Nitrosodi-n-propylamine	1.3	0.20	1.670	0	80.7	19.2	96.9			
4-Nitrophenol	3.3	0.25	3.330	0	98.0	25	118			
Pentachlorophenol	2.7	0.40	3.330	0	80.1	24.1	107			
Phenol	2.7	0.20	3.330	0	80.9	17.8	112			
Pyrene	1.6	0.20	1.670	0	94.7	25.9	125			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	75.8	18.5	92.8			
Surr: 2-Fluorophenol	2.3		3.330		68.6	20.3	74.1			
Surr: Phenol-d5	2.7		3.330		81.1	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.9		3.330		86.4	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		74.8	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		81.3	21.5	90.1			
Surr: 4-Terphenyl-d14	1.6		1.670		95.1	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62297** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62297** RunNo: **80969**
Prep Date: **8/31/2021** Analysis Date: **9/1/2021** SeqNo: **2857597** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-62297** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62297** RunNo: **80969**
Prep Date: **8/31/2021** Analysis Date: **9/1/2021** SeqNo: **2857598** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0041	0.033	0.006660	0	61.7	70	130			JS

Sample ID: **LCS-62297** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62297** RunNo: **80969**
Prep Date: **8/31/2021** Analysis Date: **9/1/2021** SeqNo: **2857599** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62159** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851951** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	70	130			
Surr: BFB	480		500.0		96.5	70	130			

Sample ID: **mb-62159** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851952** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1.5	5.0								J
Surr: BFB	500		500.0		99.8	70	130			

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855892** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	90.0	70	130			
Surr: BFB	510		500.0		101	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855893** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	500		500.0		99.3	70	130			

Sample ID: **2108a86-002ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SS10 (1')** Batch ID: **B80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855895** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	3.0	14.78	0	89.3	64.4	124			
Surr: BFB	290		295.7		97.7	70	130			

Sample ID: **2108a86-002amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SS10 (1')** Batch ID: **B80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855896** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108a86-002amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SS10 (1')** Batch ID: **B80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855896** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	3.0	14.78	0	86.9	64.4	124	2.68	20	
Surr: BFB	310		295.7		105	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Marathon** Work Order Number: **2108A86** RcptNo: **1**

Received By: **Kasandra Payan** **8/19/2021 4:42:00 PM** KPC

Completed By: **Desiree Dominguez** **8/19/2021 4:52:49 PM** DD

Reviewed By: JR 8/19/21

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☑ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
Adjusted? ____
Checked by: KPC 8/19/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.2	Good				

Released to Imaging: 8/16/2024 3:11:43 PM
Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client:	Marathon Gallup Refinery
Mailing Address:	92 Giant Crossing Road Jamesto NM,87301
Phone #:	808-640-1823
email or Fax#:	
QA/QC Package:	X Standard ☐ Level 4 (Full Validation)
Accreditation:	☐ Az Compliance ☐ NELAC ☐ Other
X EDD (Type)	

X Standard ☐ **Rush**

Project Name:	Railcar Release Investigation
Project #:	697-089-001
Project Manager:	Emily Conkling/Brian McLoughlin
Sampler:	
On Ice:	☑ Yes ☐ No
# of Coolers:	1
Cooler Temp(including CF):	5.4-0.2=5.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108A86	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM	8260-VOCs
8/19/2021	11:45	Soil	RCR-SS10 (0.5')	3		-001	x	x	x	x	x	x	
8/19/2021	11:50	Soil	RCR-SS10 (1")	3		-002	x	x	x	x	x	x	
8/19/2021	12:00	Soil	RCR-SS11 (0.5')	3		-003	x	x	x	x	x	x	
8/19/2021	12:10	Soil	RCR-SS11 (1')	3		-004	x	x	x	x	x	x	
8/19/2021	-	Soil	RCR-BD7	3		-005	x	x	x	x	x	x	
8/19/2021	11:45	Soil	RCR-EB7	3		-006							x

Date	Time	Relinquished by	Received by	Via	Date	Time
8/19/21	14:00	Brian McLoughlin		Courier	8/19/21	16:42
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP (VOC, Metals)

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

September 13, 2021

Brian McLoughlin

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL: (505) 722-3833
FAX

RE: Railcar Release Investigation OrderNo.: 2108721

Dear Brian McLoughlin:

Hall Environmental Analysis Laboratory received 65 sample(s) on 8/13/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB1 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	37	4.7	9.4		mg/Kg	1	8/20/2021 2:47:02 PM	61999
Motor Oil Range Organics (MRO)	160	47	47		mg/Kg	1	8/20/2021 2:47:02 PM	61999
Surr: DNOP	117	0	70-130		%Rec	1	8/20/2021 2:47:02 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.4	1.0	2.0	J	mg/Kg	20	8/25/2021 3:43:21 PM	62061
Barium	450	10	20		mg/Kg	200	8/25/2021 3:38:47 PM	62061
Cadmium	ND	1.0	2.0		mg/Kg	20	8/25/2021 3:43:21 PM	62061
Chromium	36	0.50	1.0		mg/Kg	10	8/27/2021 12:34:59 PM	62061
Lead	24	0.50	1.0		mg/Kg	10	8/27/2021 12:34:59 PM	62061
Selenium	1.3	1.2	2.0	J	mg/Kg	20	8/25/2021 3:43:21 PM	62061
Silver	ND	1.0	2.0		mg/Kg	20	8/25/2021 3:43:21 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.21	0.0026	0.032		mg/Kg	1	8/25/2021 10:18:02 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Chloroaniline	ND	0.93	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Naphthalene	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0085	0.022		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Toluene	0.011	0.0057	0.044	J	mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Ethylbenzene	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.025	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,4-Trimethylbenzene	0.014	0.0062	0.044	J	mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,3,5-Trimethylbenzene	ND	0.0099	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.017	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Naphthalene	ND	0.016	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1-Methylnaphthalene	ND	0.050	0.18		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Methylnaphthalene	ND	0.041	0.18		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Acetone	ND	0.14	0.66		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromobenzene	ND	0.0093	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromodichloromethane	ND	0.0056	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromoform	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromomethane	ND	0.073	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Butanone	ND	0.19	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Carbon disulfide	ND	0.018	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Carbon tetrachloride	ND	0.0049	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chlorobenzene	ND	0.0079	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chloroethane	ND	0.016	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chloroform	ND	0.0062	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chloromethane	ND	0.015	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Chlorotoluene	ND	0.0059	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.023	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
cis-1,2-DCE	ND	0.022	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
cis-1,3-Dichloropropene	ND	0.0065	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.019	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Dibromochloromethane	ND	0.0070	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Dibromomethane	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dichlorobenzene	ND	0.0091	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,3-Dichlorobenzene	ND	0.0083	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,4-Dichlorobenzene	ND	0.012	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Dichlorodifluoromethane	ND	0.017	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1-Dichloroethane	ND	0.013	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1-Dichloroethene	ND	0.0094	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dichloropropane	ND	0.0086	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,3-Dichloropropane	ND	0.0097	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2,2-Dichloropropane	ND	0.0063	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1-Dichloropropene	ND	0.0053	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Hexachlorobutadiene	ND	0.030	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Hexanone	ND	0.019	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Isopropylbenzene	ND	0.0082	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
4-Isopropyltoluene	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
4-Methyl-2-pentanone	ND	0.051	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Methylene chloride	ND	0.032	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
n-Butylbenzene	ND	0.012	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
n-Propylbenzene	ND	0.0071	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
sec-Butylbenzene	ND	0.036	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Styrene	ND	0.0060	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
tert-Butylbenzene	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0065	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.014	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Tetrachloroethene (PCE)	ND	0.012	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
trans-1,2-DCE	ND	0.0085	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
trans-1,3-Dichloropropene	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0068	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,4-Trichlorobenzene	ND	0.015	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,1-Trichloroethane	ND	0.0097	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,2-Trichloroethane	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Trichloroethene (TCE)	ND	0.0086	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Trichlorofluoromethane	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,3-Trichloropropane	ND	0.019	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
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S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0084	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Xylenes, Total	0.039	0.023	0.088	J	mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Surr: Dibromofluoromethane	112		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
Surr: Toluene-d8	97.5		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
Surr: 4-Bromofluorobenzene	95.1		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.2	4.4		mg/Kg	1	8/16/2021 2:48:51 PM	B80534
Surr: BFB	98.1	0	70-130		%Rec	1	8/16/2021 2:48:51 PM	B80534

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	3300	46	93		mg/Kg	10	8/19/2021 3:46:23 AM	61999
Motor Oil Range Organics (MRO)	1200	470	470		mg/Kg	10	8/19/2021 3:46:23 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	10	8/19/2021 3:46:23 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	3.7	0.25	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
Barium	320	9.8	20		mg/Kg	200	8/25/2021 4:01:41 PM	62061
Cadmium	ND	0.25	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
Chromium	60	0.98	2.0		mg/Kg	20	8/27/2021 12:39:32 PM	62061
Lead	37	0.49	0.98		mg/Kg	10	8/25/2021 4:10:51 PM	62061
Selenium	0.73	0.28	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
Silver	ND	0.25	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.035	0.012	0.16	J	mg/Kg	5	8/25/2021 1:04:03 PM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Acenaphthylene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Aniline	ND	17	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Anthracene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Azobenzene	ND	24	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benz(a)anthracene	ND	16	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(a)pyrene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(b)fluoranthene	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(g,h,i)perylene	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(k)fluoranthene	ND	18	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzoic acid	ND	31	250	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzyl alcohol	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-chloroethoxy)methane	ND	19	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-chloroethyl)ether	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-chloroisopropyl)ether	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-ethylhexyl)phthalate	ND	53	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Bromophenyl phenyl ether	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Butyl benzyl phthalate	ND	15	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Carbazole	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Chloro-3-methylphenol	ND	21	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Chloronaphthalene	ND	23	61	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Chlorophenol	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Chlorophenyl phenyl ether	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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PQL	Practical Quanitative Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Di-n-butyl phthalate	ND	68	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Di-n-octyl phthalate	ND	32	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Dibenz(a,h)anthracene	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Dibenzofuran	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,2-Dichlorobenzene	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,3-Dichlorobenzene	ND	17	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,4-Dichlorobenzene	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
3,3´-Dichlorobenzidine	ND	37	61	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Diethyl phthalate	ND	80	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Dimethyl phthalate	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dichlorophenol	ND	20	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dimethylphenol	ND	17	74	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4,6-Dinitro-2-methylphenol	ND	21	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dinitrophenol	ND	12	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dinitrotoluene	ND	30	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Fluoranthene	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Fluorene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachlorobenzene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachlorobutadiene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachlorocyclopentadiene	ND	28	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachloroethane	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Indeno(1,2,3-cd)pyrene	ND	28	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Isophorone	ND	20	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1-Methylnaphthalene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Methylnaphthalene	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Methylphenol	ND	21	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
3+4-Methylphenol	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
N-Nitrosodi-n-propylamine	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
N-Nitrosodimethylamine	ND	36	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
N-Nitrosodiphenylamine	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Naphthalene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Nitroaniline	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
3-Nitroaniline	ND	29	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Nitroaniline	ND	31	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Nitrobenzene	ND	20	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Nitrophenol	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Nitrophenol	ND	20	61	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996

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Qualifiers:

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PQL	Practical Quanitative Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Phenanthrene	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Phenol	ND	19	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Pyrene	ND	19	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Pyridine	ND	39	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,2,4-Trichlorobenzene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4,5-Trichlorophenol	ND	16	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4,6-Trichlorophenol	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.011	0.0074	0.019	J	mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Toluene	ND	0.0050	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Ethylbenzene	0.045	0.0094	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.022	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,4-Trimethylbenzene	0.023	0.0055	0.039	J	mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,3,5-Trimethylbenzene	ND	0.0087	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.0088	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.015	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Naphthalene	ND	0.014	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1-Methylnaphthalene	0.39	0.044	0.15		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Methylnaphthalene	ND	0.036	0.15		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Acetone	ND	0.13	0.58		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromobenzene	ND	0.0082	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromodichloromethane	ND	0.0049	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromoform	ND	0.0093	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromomethane	ND	0.064	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Butanone	ND	0.17	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Carbon disulfide	ND	0.016	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Carbon tetrachloride	ND	0.0043	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chlorobenzene	ND	0.0069	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chloroethane	ND	0.014	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chloroform	ND	0.0055	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Chlorotoluene	ND	0.0052	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
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CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
cis-1,2-DCE	ND	0.019	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
cis-1,3-Dichloropropene	ND	0.0057	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.017	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Dibromochloromethane	ND	0.0062	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Dibromomethane	ND	0.0090	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dichlorobenzene	ND	0.0080	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,3-Dichlorobenzene	ND	0.0073	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,4-Dichlorobenzene	ND	0.010	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Dichlorodifluoromethane	ND	0.015	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1-Dichloroethane	ND	0.011	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1-Dichloroethene	ND	0.0083	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dichloropropane	ND	0.0075	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,3-Dichloropropane	ND	0.0085	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2,2-Dichloropropane	ND	0.0055	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1-Dichloropropene	ND	0.0047	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Hexachlorobutadiene	ND	0.026	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Hexanone	ND	0.017	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Isopropylbenzene	ND	0.0072	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
4-Isopropyltoluene	ND	0.010	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
4-Methyl-2-pentanone	ND	0.045	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Methylene chloride	ND	0.028	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
n-Butylbenzene	ND	0.010	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
n-Propylbenzene	0.028	0.0062	0.039	J	mg/Kg	1	8/16/2021 4:14:49 PM	A80534
sec-Butylbenzene	ND	0.032	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Styrene	ND	0.0053	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
tert-Butylbenzene	ND	0.0089	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0057	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.012	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Tetrachloroethene (PCE)	ND	0.011	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
trans-1,2-DCE	ND	0.0075	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
trans-1,3-Dichloropropene	ND	0.0091	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0060	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,4-Trichlorobenzene	ND	0.013	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,1-Trichloroethane	ND	0.0085	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,2-Trichloroethane	ND	0.0097	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Trichloroethene (TCE)	ND	0.0076	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Trichlorofluoromethane	ND	0.0088	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,3-Trichloropropane	ND	0.016	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534

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Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0074	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Xylenes, Total	ND	0.020	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
Surr: 1,2-Dichloroethane-d4	106		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
Surr: Toluene-d8	100		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
Surr: 4-Bromofluorobenzene	93.0		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	2.2	1.1	3.9	J	mg/Kg	1	8/16/2021 4:14:49 PM	B80534
Surr: BFB	99.4	0	70-130		%Rec	1	8/16/2021 4:14:49 PM	B80534

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Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	770	4.7	9.5		mg/Kg	1	8/17/2021 6:52:08 PM	61999
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 6:52:08 PM	61999
Surr: DNOP	118	0	70-130		%Rec	1	8/17/2021 6:52:08 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.79	0.24	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
Barium	410	4.8	9.6		mg/Kg	100	8/25/2021 4:15:24 PM	62061
Cadmium	ND	0.24	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
Chromium	13	0.24	0.48		mg/Kg	5	8/27/2021 12:44:05 PM	62061
Lead	9.3	0.24	0.48		mg/Kg	5	8/27/2021 12:44:05 PM	62061
Selenium	0.70	0.28	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
Silver	ND	0.24	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0054	0.0028	0.035	J	mg/Kg	1	8/25/2021 10:30:52 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benz(a)anthracene	ND	0.63	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(a)pyrene	ND	0.92	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzoic acid	ND	1.2	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzyl alcohol	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Carbazole	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Chlorophenyl phenyl ether	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996

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Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,2-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,4-Dichlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Dimethyl phthalate	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Fluoranthene	ND	0.79	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Fluorene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachlorobenzene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1-Methylnaphthalene	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Naphthalene	ND	0.92	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Nitroaniline	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Nitrophenol	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Pyrene	ND	0.74	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4,6-Trichlorophenol	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.023	0.0095	0.025	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Toluene	0.011	0.0063	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Ethylbenzene	0.021	0.012	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Methyl tert-butyl ether (MTBE)	ND	0.028	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,4-Trimethylbenzene	0.072	0.0070	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Naphthalene	ND	0.018	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1-Methylnaphthalene	1.9	0.056	0.20		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Acetone	ND	0.16	0.74		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromobenzene	ND	0.010	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromodichloromethane	0.012	0.0063	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromoform	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromomethane	ND	0.082	0.15		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Butanone	ND	0.21	0.49		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Carbon disulfide	ND	0.020	0.49		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Carbon tetrachloride	ND	0.0055	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chlorobenzene	ND	0.0089	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chloroethane	ND	0.018	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chloroform	0.011	0.0070	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Chlorotoluene	ND	0.0066	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.026	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
cis-1,2-DCE	ND	0.024	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
cis-1,3-Dichloropropene	ND	0.0073	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Dibromochloromethane	ND	0.0079	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Dibromomethane	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dichlorobenzene	ND	0.010	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,3-Dichlorobenzene	ND	0.0093	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,4-Dichlorobenzene	ND	0.013	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Dichlorodifluoromethane	ND	0.019	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1-Dichloroethane	ND	0.014	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1-Dichloroethene	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dichloropropane	ND	0.0096	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,3-Dichloropropane	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2,2-Dichloropropane	ND	0.0070	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1-Dichloropropene	ND	0.0059	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Hexachlorobutadiene	ND	0.034	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Hexanone	0.36	0.022	0.49	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Isopropylbenzene	ND	0.0091	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
4-Isopropyltoluene	0.021	0.013	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
4-Methyl-2-pentanone	ND	0.057	0.49		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/23/2021 8:32:29 PM	62009
n-Butylbenzene	0.021	0.013	0.15	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
n-Propylbenzene	0.035	0.0080	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
sec-Butylbenzene	ND	0.041	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Styrene	ND	0.0067	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
tert-Butylbenzene	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,1,2-Tetrachloroethane	ND	0.0072	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,2,2-Tetrachloroethane	ND	0.016	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Tetrachloroethene (PCE)	ND	0.014	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
trans-1,2-DCE	ND	0.0095	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
trans-1,3-Dichloropropene	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,3-Trichlorobenzene	ND	0.0076	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,1-Trichloroethane	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,2-Trichloroethane	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Trichloroethene (TCE)	ND	0.0097	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Trichlorofluoromethane	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,3-Trichloropropane	ND	0.021	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0094	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Xylenes, Total	ND	0.026	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Surr: Dibromofluoromethane	91.3		70-130		%Rec	1	8/23/2021 8:32:29 PM	62009
Surr: 1,2-Dichloroethane-d4	96.8		70-130		%Rec	1	8/23/2021 8:32:29 PM	62009
Surr: Toluene-d8	101		70-130		%Rec	1	8/23/2021 8:32:29 PM	62009
Surr: 4-Bromofluorobenzene	143		70-130	S	%Rec	1	8/23/2021 8:32:29 PM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	9.6	1.4	4.9		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Surr: BFB	127	0	70-130		%Rec	1	8/23/2021 8:32:29 PM	62009

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	470	4.8	9.8		mg/Kg	1	8/18/2021 3:05:22 PM	61999
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/18/2021 3:05:22 PM	61999
Surr: DNOP	118	0	70-130		%Rec	1	8/18/2021 3:05:22 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.65	0.24	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
Barium	340	4.8	9.6		mg/Kg	100	8/25/2021 4:38:10 PM	62061
Cadmium	ND	0.24	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
Chromium	17	0.24	0.48		mg/Kg	5	8/27/2021 12:48:39 PM	62061
Lead	12	0.24	0.48		mg/Kg	5	8/27/2021 12:48:39 PM	62061
Selenium	0.84	0.28	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
Silver	ND	0.24	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0041	0.0028	0.036	J	mg/Kg	1	8/25/2021 10:33:01 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Acenaphthylene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Aniline	ND	1.4	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Anthracene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Azobenzene	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benz(a)anthracene	ND	1.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(a)pyrene	ND	1.9	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(b)fluoranthene	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(g,h,i)perylene	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(k)fluoranthene	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzoic acid	ND	2.5	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzyl alcohol	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-chloroethoxy)methane	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-chloroethyl)ether	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-chloroisopropyl)ether	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-ethylhexyl)phthalate	ND	4.3	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Bromophenyl phenyl ether	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Butyl benzyl phthalate	ND	1.2	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Carbazole	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Chloro-3-methylphenol	ND	1.7	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Chloroaniline	ND	1.9	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Chloronaphthalene	ND	1.9	5.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Chlorophenol	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Chlorophenyl phenyl ether	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Di-n-butyl phthalate	ND	5.5	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Di-n-octyl phthalate	ND	2.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Dibenz(a,h)anthracene	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Dibenzofuran	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,2-Dichlorobenzene	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,3-Dichlorobenzene	ND	1.4	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,4-Dichlorobenzene	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
3,3´-Dichlorobenzidine	ND	3.0	5.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Diethyl phthalate	ND	6.5	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Dimethyl phthalate	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dichlorophenol	ND	1.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dimethylphenol	ND	1.4	6.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4,6-Dinitro-2-methylphenol	ND	1.7	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dinitrophenol	ND	1.0	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dinitrotoluene	ND	2.4	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,6-Dinitrotoluene	ND	2.0	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Fluoranthene	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Fluorene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachlorobenzene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachlorobutadiene	ND	1.9	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachlorocyclopentadiene	ND	2.2	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachloroethane	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Indeno(1,2,3-cd)pyrene	ND	2.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Isophorone	ND	1.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1-Methylnaphthalene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Methylnaphthalene	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Methylphenol	ND	1.7	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
3+4-Methylphenol	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
N-Nitrosodi-n-propylamine	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
N-Nitrosodimethylamine	ND	3.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
N-Nitrosodiphenylamine	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Naphthalene	ND	1.9	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Nitroaniline	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
3-Nitroaniline	ND	2.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Nitroaniline	ND	2.5	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Nitrobenzene	ND	1.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Nitrophenol	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Nitrophenol	ND	1.6	5.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	1.7	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Phenanthrene	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Phenol	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Pyrene	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Pyridine	ND	3.2	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,2,4-Trichlorobenzene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4,5-Trichlorophenol	ND	1.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4,6-Trichlorophenol	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.10	0.0091	0.024		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Toluene	0.057	0.0061	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Ethylbenzene	0.032	0.011	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Methyl tert-butyl ether (MTBE)	ND	0.027	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,4-Trimethylbenzene	0.10	0.0066	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Naphthalene	ND	0.017	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1-Methylnaphthalene	0.61	0.054	0.19		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Methylnaphthalene	0.054	0.043	0.19	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Acetone	ND	0.15	0.71		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromobenzene	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromodichloromethane	0.026	0.0060	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromoform	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromomethane	ND	0.078	0.14		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Butanone	ND	0.20	0.47		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Carbon disulfide	ND	0.019	0.47		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Carbon tetrachloride	ND	0.0052	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chlorobenzene	ND	0.0085	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chloroethane	ND	0.018	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chloroform	0.028	0.0067	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chloromethane	ND	0.016	0.14		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Chlorotoluene	ND	0.0063	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.025	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
cis-1,2-DCE	ND	0.023	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
cis-1,3-Dichloropropene	ND	0.0070	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dibromo-3-chloropropane	ND	0.020	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Dibromochloromethane	ND	0.0075	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Dibromomethane	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dichlorobenzene	ND	0.0098	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,3-Dichlorobenzene	ND	0.0089	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,4-Dichlorobenzene	ND	0.013	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Dichlorodifluoromethane	ND	0.018	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1-Dichloroethane	ND	0.014	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1-Dichloroethene	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dichloropropane	ND	0.0092	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,3-Dichloropropane	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2,2-Dichloropropane	ND	0.0067	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1-Dichloropropene	ND	0.0057	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Hexachlorobutadiene	ND	0.032	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Hexanone	0.19	0.021	0.47	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Isopropylbenzene	ND	0.0087	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
4-Isopropyltoluene	0.021	0.012	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
4-Methyl-2-pentanone	0.24	0.055	0.47	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Methylene chloride	ND	0.034	0.14		mg/Kg	1	8/23/2021 10:47:35 PM	62009
n-Butylbenzene	0.017	0.013	0.14	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
n-Propylbenzene	0.021	0.0076	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
sec-Butylbenzene	ND	0.039	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Styrene	ND	0.0064	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
tert-Butylbenzene	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,1,2-Tetrachloroethane	ND	0.0069	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,2,2-Tetrachloroethane	ND	0.015	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Tetrachloroethene (PCE)	ND	0.013	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
trans-1,2-DCE	ND	0.0091	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
trans-1,3-Dichloropropene	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,3-Trichlorobenzene	ND	0.0073	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,4-Trichlorobenzene	ND	0.016	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,1-Trichloroethane	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,2-Trichloroethane	ND	0.012	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Trichloroethene (TCE)	ND	0.0092	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Trichlorofluoromethane	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,3-Trichloropropane	ND	0.020	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0090	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Xylenes, Total	0.052	0.025	0.094	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Surr: Dibromofluoromethane	88.4		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
Surr: 1,2-Dichloroethane-d4	95.4		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
Surr: Toluene-d8	106		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
Surr: 4-Bromofluorobenzene	127		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	37	1.3	4.7		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Surr: BFB	122	0	70-130		%Rec	1	8/23/2021 10:47:35 PM	62009

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	490	4.5	9.2		mg/Kg	1	8/17/2021 7:11:54 PM	61999
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	8/17/2021 7:11:54 PM	61999
Surr: DNOP	114	0	70-130		%Rec	1	8/17/2021 7:11:54 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.59	0.24	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
Barium	310	4.9	9.7		mg/Kg	100	8/25/2021 4:47:16 PM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
Chromium	20	0.24	0.49		mg/Kg	5	8/27/2021 12:53:12 PM	62061
Lead	12	0.24	0.49		mg/Kg	5	8/27/2021 12:53:12 PM	62061
Selenium	0.77	0.28	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0035	0.0024	0.031	J	mg/Kg	1	8/25/2021 10:35:10 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Acenaphthylene	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Aniline	ND	0.65	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Anthracene	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Azobenzene	ND	0.94	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benz(a)anthracene	ND	0.61	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(a)pyrene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(g,h,i)perylene	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(k)fluoranthene	ND	0.71	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzoic acid	ND	1.2	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzyl alcohol	ND	0.77	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-chloroethoxy)methane	ND	0.72	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-chloroethyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.0	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Bromophenyl phenyl ether	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Carbazole	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Chloro-3-methylphenol	ND	0.79	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Chloroaniline	ND	0.92	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Chloronaphthalene	ND	0.89	2.4	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Chlorophenyl phenyl ether	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Di-n-butyl phthalate	ND	2.6	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Dibenz(a,h)anthracene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Dibenzofuran	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,2-Dichlorobenzene	ND	0.76	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,3-Dichlorobenzene	ND	0.67	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,4-Dichlorobenzene	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Diethyl phthalate	ND	3.1	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Dimethyl phthalate	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dichlorophenol	ND	0.76	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dimethylphenol	ND	0.67	2.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.79	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dinitrophenol	ND	0.47	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dinitrotoluene	ND	1.1	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,6-Dinitrotoluene	ND	0.96	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Fluoranthene	ND	0.76	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Fluorene	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachlorobenzene	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachlorobutadiene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachloroethane	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Isophorone	ND	0.77	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1-Methylnaphthalene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Methylnaphthalene	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Methylphenol	ND	0.79	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
3+4-Methylphenol	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
N-Nitrosodi-n-propylamine	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
N-Nitrosodiphenylamine	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Naphthalene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Nitroaniline	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Nitrobenzene	ND	0.77	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Nitrophenol	ND	0.81	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Nitrophenol	ND	0.77	2.4	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.81	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Phenanthrene	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Phenol	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Pyrene	ND	0.71	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,2,4-Trichlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4,5-Trichlorophenol	ND	0.60	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4,6-Trichlorophenol	ND	0.81	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.1	0.019	0.050		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Toluene	0.52	0.013	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Ethylbenzene	0.11	0.025	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.057	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,4-Trimethylbenzene	0.28	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,3,5-Trimethylbenzene	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.040	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Naphthalene	ND	0.038	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1-Methylnaphthalene	0.82	0.12	0.40		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Methylnaphthalene	ND	0.093	0.40		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Acetone	ND	0.33	1.5		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromobenzene	ND	0.021	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromodichloromethane	ND	0.013	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromoform	ND	0.024	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromomethane	ND	0.17	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Butanone	ND	0.44	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Carbon disulfide	ND	0.042	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Carbon tetrachloride	ND	0.011	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chlorobenzene	ND	0.018	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chloroethane	ND	0.038	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chloroform	ND	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chloromethane	ND	0.035	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Chlorotoluene	ND	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.053	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
cis-1,2-DCE	ND	0.050	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
cis-1,3-Dichloropropene	ND	0.015	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.044	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Dibromochloromethane	ND	0.016	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Dibromomethane	ND	0.024	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dichlorobenzene	ND	0.021	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,3-Dichlorobenzene	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,4-Dichlorobenzene	ND	0.027	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Dichlorodifluoromethane	ND	0.039	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1-Dichloroethane	ND	0.029	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1-Dichloroethene	ND	0.022	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dichloropropane	ND	0.020	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,3-Dichloropropane	ND	0.022	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2,2-Dichloropropane	ND	0.014	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1-Dichloropropene	ND	0.012	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Hexachlorobutadiene	ND	0.069	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Hexanone	ND	0.044	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Isopropylbenzene	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
4-Isopropyltoluene	0.053	0.026	0.10	J	mg/Kg	2	8/17/2021 3:31:44 PM	R80598
4-Methyl-2-pentanone	ND	0.12	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Methylene chloride	ND	0.073	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
n-Butylbenzene	ND	0.027	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
n-Propylbenzene	0.031	0.016	0.10	J	mg/Kg	2	8/17/2021 3:31:44 PM	R80598
sec-Butylbenzene	ND	0.083	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Styrene	ND	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
tert-Butylbenzene	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.015	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.033	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Tetrachloroethene (PCE)	ND	0.028	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
trans-1,2-DCE	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
trans-1,3-Dichloropropene	ND	0.024	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,3-Trichlorobenzene	ND	0.016	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,4-Trichlorobenzene	ND	0.035	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,1-Trichloroethane	ND	0.022	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,2-Trichloroethane	ND	0.025	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Trichloroethene (TCE)	ND	0.020	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Trichlorofluoromethane	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,3-Trichloropropane	ND	0.042	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Xylenes, Total	0.18	0.053	0.20	J	mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Surr: Dibromofluoromethane	94.9		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
Surr: 1,2-Dichloroethane-d4	96.6		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
Surr: Toluene-d8	104		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
Surr: 4-Bromofluorobenzene	95.4		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	200	2.8	10		mg/Kg	2	8/17/2021 3:31:44 PM	G80598
Surr: BFB	101	0	70-130		%Rec	2	8/17/2021 3:31:44 PM	G80598

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1200	44	88		mg/Kg	10	8/17/2021 7:21:49 PM	61999
Motor Oil Range Organics (MRO)	ND	440	440	D	mg/Kg	10	8/17/2021 7:21:49 PM	61999
Surr: DNOP	0	0	70-130	S	%Rec	10	8/17/2021 7:21:49 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.83	0.26	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
Barium	270	5.2	10		mg/Kg	100	8/25/2021 4:56:21 PM	62061
Cadmium	ND	0.26	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
Chromium	21	0.26	0.52		mg/Kg	5	8/27/2021 12:57:45 PM	62061
Lead	13	0.26	0.52		mg/Kg	5	8/27/2021 12:57:45 PM	62061
Selenium	0.87	0.30	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
Silver	ND	0.26	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0043	0.0028	0.035	J	mg/Kg	1	8/25/2021 10:37:19 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzoic acid	ND	1.2	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Chloro-3-methylphenol	ND	0.82	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Diethyl phthalate	ND	3.2	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dinitrophenol	ND	0.49	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.63	0.0087	0.023		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Toluene	0.26	0.0058	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Ethylbenzene	0.048	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.026	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,4-Trimethylbenzene	0.043	0.0064	0.045	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,3,5-Trimethylbenzene	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.018	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Naphthalene	ND	0.017	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1-Methylnaphthalene	0.082	0.052	0.18	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Methylnaphthalene	ND	0.042	0.18		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Acetone	ND	0.15	0.68		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromobenzene	ND	0.0096	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromodichloromethane	ND	0.0058	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromoform	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromomethane	ND	0.075	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Butanone	ND	0.20	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Carbon disulfide	ND	0.019	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Carbon tetrachloride	ND	0.0050	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chlorobenzene	ND	0.0082	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chloroethane	ND	0.017	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chloroform	ND	0.0064	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chloromethane	ND	0.016	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Chlorotoluene	ND	0.0061	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.024	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
cis-1,2-DCE	ND	0.022	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
cis-1,3-Dichloropropene	ND	0.0067	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.020	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Dibromochloromethane	ND	0.0073	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Dibromomethane	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dichlorobenzene	ND	0.0094	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,3-Dichlorobenzene	ND	0.0086	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,4-Dichlorobenzene	ND	0.012	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Dichlorodifluoromethane	ND	0.018	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1-Dichloroethane	ND	0.013	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1-Dichloroethene	ND	0.0097	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dichloropropane	ND	0.0088	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,3-Dichloropropane	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2,2-Dichloropropane	ND	0.0064	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1-Dichloropropene	ND	0.0055	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Hexachlorobutadiene	ND	0.031	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Hexanone	ND	0.020	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Isopropylbenzene	ND	0.0084	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
4-Isopropyltoluene	ND	0.012	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
4-Methyl-2-pentanone	ND	0.053	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Methylene chloride	ND	0.033	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
n-Butylbenzene	ND	0.012	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
n-Propylbenzene	0.0084	0.0073	0.045	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
sec-Butylbenzene	ND	0.037	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Styrene	ND	0.0062	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
tert-Butylbenzene	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0067	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.015	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Tetrachloroethene (PCE)	ND	0.012	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
trans-1,2-DCE	ND	0.0088	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
trans-1,3-Dichloropropene	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0070	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,4-Trichlorobenzene	ND	0.016	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,1-Trichloroethane	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,2-Trichloroethane	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Trichloroethene (TCE)	ND	0.0089	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Trichlorofluoromethane	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,3-Trichloropropane	ND	0.019	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598

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Qualifiers:

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ND	Not Detected at the Reporting Limit
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B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0086	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Xylenes, Total	0.082	0.024	0.091	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Surr: Dibromofluoromethane	93.6		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
Surr: 1,2-Dichloroethane-d4	95.2		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
Surr: Toluene-d8	104		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
Surr: 4-Bromofluorobenzene	92.6		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	50	1.3	4.5		mg/Kg	1	8/17/2021 4:29:14 PM	G80598
Surr: BFB	97.3	0	70-130		%Rec	1	8/17/2021 4:29:14 PM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	650	45	90		mg/Kg	10	8/19/2021 5:21:33 AM	61999
Motor Oil Range Organics (MRO)	970	450	450		mg/Kg	10	8/19/2021 5:21:33 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	10	8/19/2021 5:21:33 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	2.5	5.0		mg/Kg	50	8/25/2021 5:09:59 PM	62061
Barium	730	25	50		mg/Kg	500	8/25/2021 5:05:26 PM	62061
Cadmium	ND	2.5	5.0		mg/Kg	50	8/25/2021 5:09:59 PM	62061
Chromium	26	0.50	1.0		mg/Kg	10	8/25/2021 5:14:32 PM	62061
Lead	25	0.50	1.0		mg/Kg	10	8/27/2021 1:02:19 PM	62061
Selenium	ND	2.9	5.0		mg/Kg	50	8/25/2021 5:09:59 PM	62061
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 1:02:19 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.094	0.0026	0.033		mg/Kg	1	8/25/2021 10:39:28 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	4.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Acenaphthylene	ND	4.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Aniline	ND	3.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Anthracene	ND	4.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Azobenzene	ND	4.9	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benz(a)anthracene	ND	3.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(a)pyrene	ND	4.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(b)fluoranthene	ND	5.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(g,h,i)perylene	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(k)fluoranthene	ND	3.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzoic acid	ND	6.1	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzyl alcohol	ND	4.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-chloroethoxy)methane	ND	3.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-chloroethyl)ether	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-chloroisopropyl)ether	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-ethylhexyl)phthalate	ND	10	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Bromophenyl phenyl ether	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Butyl benzyl phthalate	ND	3.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Carbazole	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Chloro-3-methylphenol	ND	4.1	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Chloroaniline	ND	4.7	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Chloronaphthalene	ND	4.6	12	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Chlorophenol	ND	5.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Chlorophenyl phenyl ether	ND	4.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Di-n-butyl phthalate	ND	14	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Di-n-octyl phthalate	ND	6.3	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Dibenz(a,h)anthracene	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Dibenzofuran	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,2-Dichlorobenzene	ND	3.9	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,3-Dichlorobenzene	ND	3.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,4-Dichlorobenzene	ND	4.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
3,3´-Dichlorobenzidine	ND	7.3	12	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Diethyl phthalate	ND	16	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Dimethyl phthalate	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dichlorophenol	ND	4.0	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dimethylphenol	ND	3.5	15	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4,6-Dinitro-2-methylphenol	ND	4.1	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dinitrophenol	ND	2.5	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dinitrotoluene	ND	5.9	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,6-Dinitrotoluene	ND	5.0	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Fluoranthene	ND	3.9	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Fluorene	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachlorobenzene	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachlorobutadiene	ND	4.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachlorocyclopentadiene	ND	5.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachloroethane	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Indeno(1,2,3-cd)pyrene	ND	5.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Isophorone	ND	4.0	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1-Methylnaphthalene	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Methylnaphthalene	ND	4.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Methylphenol	ND	4.1	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
3+4-Methylphenol	ND	4.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
N-Nitrosodi-n-propylamine	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
N-Nitrosodimethylamine	ND	7.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
N-Nitrosodiphenylamine	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Naphthalene	ND	4.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Nitroaniline	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
3-Nitroaniline	ND	5.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Nitroaniline	ND	6.3	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Nitrobenzene	ND	4.0	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Nitrophenol	ND	4.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Nitrophenol	ND	4.0	12	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	4.2	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Phenanthrene	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Phenol	ND	3.8	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Pyrene	ND	3.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Pyridine	ND	7.8	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,2,4-Trichlorobenzene	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4,5-Trichlorophenol	ND	3.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4,6-Trichlorophenol	ND	4.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0092	0.024		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Toluene	ND	0.0062	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Ethylbenzene	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.027	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,4-Trimethylbenzene	ND	0.0068	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,3,5-Trimethylbenzene	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.019	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Naphthalene	ND	0.018	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1-Methylnaphthalene	ND	0.055	0.19		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Methylnaphthalene	0.054	0.044	0.19	J	mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Acetone	ND	0.16	0.72		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromobenzene	ND	0.010	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromodichloromethane	ND	0.0061	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromoform	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromomethane	ND	0.079	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Butanone	ND	0.21	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Carbon disulfide	ND	0.020	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Carbon tetrachloride	ND	0.0053	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chlorobenzene	ND	0.0086	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chloroethane	ND	0.018	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chloroform	ND	0.0068	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chloromethane	ND	0.017	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Chlorotoluene	ND	0.0064	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB2 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.025	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
cis-1,2-DCE	ND	0.024	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
cis-1,3-Dichloropropene	ND	0.0071	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.021	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Dibromochloromethane	ND	0.0077	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Dibromomethane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dichlorobenzene	ND	0.010	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,3-Dichlorobenzene	ND	0.0091	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,4-Dichlorobenzene	ND	0.013	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Dichlorodifluoromethane	ND	0.019	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1-Dichloroethane	ND	0.014	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1-Dichloroethene	ND	0.010	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dichloropropane	ND	0.0093	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,3-Dichloropropane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2,2-Dichloropropane	ND	0.0068	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1-Dichloropropene	ND	0.0058	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Hexachlorobutadiene	ND	0.033	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Hexanone	ND	0.021	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Isopropylbenzene	ND	0.0089	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
4-Isopropyltoluene	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
4-Methyl-2-pentanone	ND	0.056	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Methylene chloride	ND	0.035	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
n-Butylbenzene	ND	0.013	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
n-Propylbenzene	ND	0.0077	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
sec-Butylbenzene	ND	0.040	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Styrene	ND	0.0065	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
tert-Butylbenzene	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0070	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.016	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Tetrachloroethene (PCE)	ND	0.013	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
trans-1,2-DCE	ND	0.0093	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
trans-1,3-Dichloropropene	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0074	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,4-Trichlorobenzene	ND	0.017	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,1-Trichloroethane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,2-Trichloroethane	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Trichloroethene (TCE)	ND	0.0094	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Trichlorofluoromethane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,3-Trichloropropane	ND	0.020	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0091	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Xylenes, Total	ND	0.025	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
Surr: Toluene-d8	97.9		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
Surr: 4-Bromofluorobenzene	89.8		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.3	4.8		mg/Kg	1	8/16/2021 6:38:09 PM	B80534
Surr: BFB	97.1	0	70-130		%Rec	1	8/16/2021 6:38:09 PM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	24000	480	980		mg/Kg	100	8/17/2021 7:41:40 PM	61999
Motor Oil Range Organics (MRO)	5300	4900	4900		mg/Kg	100	8/17/2021 7:41:40 PM	61999
Surr: DNOP	0	0	70-130	S	%Rec	100	8/17/2021 7:41:40 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	9.7	19		mg/Kg	200	8/25/2021 5:19:05 PM	62061
Barium	340	9.7	19		mg/Kg	200	8/25/2021 5:19:05 PM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:24:31 PM	62061
Chromium	47	0.49	0.97		mg/Kg	10	8/25/2021 5:32:46 PM	62061
Lead	57	0.97	1.9		mg/Kg	20	8/30/2021 2:15:42 PM	62061
Selenium	ND	11	19		mg/Kg	200	8/25/2021 5:19:05 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:24:31 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.062	0.0024	0.031		mg/Kg	1	8/25/2021 10:41:36 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	88	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Acenaphthylene	ND	89	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Aniline	ND	68	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Anthracene	ND	89	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Azobenzene	ND	98	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benz(a)anthracene	ND	63	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(a)pyrene	ND	93	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(b)fluoranthene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(g,h,i)perylene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(k)fluoranthene	ND	74	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzoic acid	ND	120	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzyl alcohol	ND	81	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-chloroethoxy)methane	ND	75	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-chloroethyl)ether	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-chloroisopropyl)ether	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-ethylhexyl)phthalate	ND	210	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Bromophenyl phenyl ether	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Butyl benzyl phthalate	ND	60	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Carbazole	ND	87	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Chloro-3-methylphenol	ND	83	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Chloroaniline	ND	96	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Chloronaphthalene	ND	93	250	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Chlorophenol	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Chlorophenyl phenyl ether	ND	84	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	87	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Di-n-butyl phthalate	ND	270	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Di-n-octyl phthalate	ND	130	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Dibenz(a,h)anthracene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Dibenzofuran	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,2-Dichlorobenzene	ND	80	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,3-Dichlorobenzene	ND	70	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,4-Dichlorobenzene	ND	84	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
3,3´-Dichlorobenzidine	ND	150	250	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Diethyl phthalate	ND	320	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Dimethyl phthalate	ND	91	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dichlorophenol	ND	80	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dimethylphenol	ND	70	300	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4,6-Dinitro-2-methylphenol	ND	83	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dinitrophenol	ND	50	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dinitrotoluene	ND	120	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,6-Dinitrotoluene	ND	100	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Fluoranthene	ND	80	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Fluorene	ND	88	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachlorobenzene	ND	88	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachlorobutadiene	ND	92	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachlorocyclopentadiene	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachloroethane	ND	87	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Indeno(1,2,3-cd)pyrene	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Isophorone	ND	80	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1-Methylnaphthalene	ND	91	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Methylnaphthalene	ND	81	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Methylphenol	ND	83	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
3+4-Methylphenol	ND	81	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
N-Nitrosodi-n-propylamine	ND	91	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
N-Nitrosodimethylamine	ND	150	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
N-Nitrosodiphenylamine	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Naphthalene	ND	93	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Nitroaniline	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
3-Nitroaniline	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Nitroaniline	ND	130	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Nitrobenzene	ND	81	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Nitrophenol	ND	85	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Nitrophenol	ND	81	250	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	85	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Phenanthrene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Phenol	ND	76	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Pyrene	ND	75	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Pyridine	ND	160	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,2,4-Trichlorobenzene	ND	90	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4,5-Trichlorophenol	ND	63	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4,6-Trichlorophenol	ND	85	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.41	0.034	0.089		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Toluene	0.026	0.023	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Ethylbenzene	1.0	0.043	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.10	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,4-Trimethylbenzene	1.1	0.025	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,3,5-Trimethylbenzene	0.063	0.040	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.040	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.070	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Naphthalene	ND	0.066	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1-Methylnaphthalene	5.9	0.20	0.71		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Methylnaphthalene	0.61	0.16	0.71	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Acetone	ND	0.58	2.7		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromobenzene	ND	0.038	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromodichloromethane	ND	0.023	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromoform	ND	0.043	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromomethane	ND	0.29	0.53		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Butanone	ND	0.77	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Carbon disulfide	ND	0.073	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Carbon tetrachloride	ND	0.020	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chlorobenzene	ND	0.032	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chloroethane	ND	0.066	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chloroform	ND	0.025	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chloromethane	ND	0.062	0.53		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Chlorotoluene	ND	0.024	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.093	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
cis-1,2-DCE	ND	0.088	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
cis-1,3-Dichloropropene	ND	0.026	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.077	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Dibromochloromethane	ND	0.028	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Dibromomethane	ND	0.041	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dichlorobenzene	ND	0.037	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,3-Dichlorobenzene	ND	0.033	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,4-Dichlorobenzene	ND	0.047	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Dichlorodifluoromethane	ND	0.068	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1-Dichloroethane	ND	0.052	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1-Dichloroethene	ND	0.038	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dichloropropane	ND	0.035	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,3-Dichloropropane	ND	0.039	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2,2-Dichloropropane	ND	0.025	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1-Dichloropropene	ND	0.021	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Hexachlorobutadiene	ND	0.12	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Hexanone	ND	0.077	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Isopropylbenzene	0.041	0.033	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
4-Isopropyltoluene	0.049	0.046	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
4-Methyl-2-pentanone	ND	0.21	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Methylene chloride	ND	0.13	0.53		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
n-Butylbenzene	0.054	0.047	0.53	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
n-Propylbenzene	0.094	0.029	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
sec-Butylbenzene	ND	0.15	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Styrene	ND	0.024	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
tert-Butylbenzene	ND	0.041	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.026	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.057	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Tetrachloroethene (PCE)	ND	0.049	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
trans-1,2-DCE	ND	0.034	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
trans-1,3-Dichloropropene	ND	0.042	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,3-Trichlorobenzene	ND	0.027	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,4-Trichlorobenzene	ND	0.062	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,1-Trichloroethane	ND	0.039	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,2-Trichloroethane	ND	0.044	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Trichloroethene (TCE)	ND	0.035	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Trichlorofluoromethane	ND	0.040	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,3-Trichloropropane	ND	0.075	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.034	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Xylenes, Total	1.3	0.093	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Surr: Dibromofluoromethane	109		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
Surr: 1,2-Dichloroethane-d4	112		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
Surr: Toluene-d8	96.2		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
Surr: 4-Bromofluorobenzene	92.9		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	43	4.9	18		mg/Kg	5	8/16/2021 7:06:48 PM	B80534
Surr: BFB	98.9	0	70-130		%Rec	5	8/16/2021 7:06:48 PM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	130	4.7	9.5		mg/Kg	1	8/20/2021 2:21:59 PM	61999
Motor Oil Range Organics (MRO)	220	47	47		mg/Kg	1	8/20/2021 2:21:59 PM	61999
Surr: DNOP	117	0	70-130		%Rec	1	8/20/2021 2:21:59 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	10	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Barium	270	10	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Cadmium	ND	10	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Chromium	28	0.50	1.0		mg/Kg	10	8/25/2021 5:41:52 PM	62061
Lead	16	0.50	1.0		mg/Kg	10	8/30/2021 2:19:09 PM	62061
Selenium	ND	11	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Silver	ND	0.25	0.50		mg/Kg	5	8/27/2021 1:20:34 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.029	0.0028	0.036	J	mg/Kg	1	8/25/2021 10:43:44 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benz(a)anthracene	ND	0.63	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(a)pyrene	ND	0.92	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzoic acid	ND	1.2	9.7	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzyl alcohol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,2-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Dimethyl phthalate	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Fluoranthene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Fluorene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Naphthalene	ND	0.92	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Nitrophenol	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Pyrene	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4,6-Trichlorophenol	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.099	0.0072	0.019		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Toluene	0.061	0.0048	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Ethylbenzene	6.2	0.092	0.38		mg/Kg	10	8/17/2021 5:26:46 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.021	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,4-Trimethylbenzene	12	0.053	0.38		mg/Kg	10	8/17/2021 5:26:46 PM	R80598
1,3,5-Trimethylbenzene	0.80	0.0084	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.0086	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.015	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Naphthalene	1.2	0.014	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1-Methylnaphthalene	3.7	0.43	1.5		mg/Kg	10	8/17/2021 5:26:46 PM	R80598
2-Methylnaphthalene	1.8	0.035	0.15		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Acetone	ND	0.12	0.56		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromobenzene	ND	0.0080	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromodichloromethane	ND	0.0048	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromoform	ND	0.0091	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromomethane	ND	0.062	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2-Butanone	ND	0.16	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Carbon disulfide	ND	0.015	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Carbon tetrachloride	ND	0.0042	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chlorobenzene	ND	0.0068	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chloroethane	ND	0.014	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chloroform	ND	0.0053	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2-Chlorotoluene	ND	0.0050	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534

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Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB2 (2.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
cis-1,2-DCE	ND	0.019	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
cis-1,3-Dichloropropene	ND	0.0056	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.016	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Dibromochloromethane	ND	0.0060	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Dibromomethane	ND	0.0088	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dichlorobenzene	ND	0.0078	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,3-Dichlorobenzene	ND	0.0071	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,4-Dichlorobenzene	ND	0.010	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Dichlorodifluoromethane	ND	0.015	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1-Dichloroethane	ND	0.011	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1-Dichloroethene	ND	0.0081	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dichloropropane	ND	0.0073	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,3-Dichloropropane	ND	0.0083	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2,2-Dichloropropane	ND	0.0053	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1-Dichloropropene	ND	0.0045	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Hexachlorobutadiene	ND	0.026	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2-Hexanone	ND	0.016	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Isopropylbenzene	0.52	0.0070	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
4-Isopropyltoluene	0.11	0.0097	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
4-Methyl-2-pentanone	ND	0.044	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
n-Butylbenzene	0.38	0.010	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
n-Propylbenzene	2.3	0.0061	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
sec-Butylbenzene	0.17	0.031	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Styrene	ND	0.0051	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
tert-Butylbenzene	ND	0.0087	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0055	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.012	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Tetrachloroethene (PCE)	ND	0.010	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
trans-1,2-DCE	ND	0.0073	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
trans-1,3-Dichloropropene	ND	0.0088	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0058	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,4-Trichlorobenzene	ND	0.013	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,1-Trichloroethane	ND	0.0083	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,2-Trichloroethane	ND	0.0094	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Trichloroethene (TCE)	ND	0.0074	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Trichlorofluoromethane	ND	0.0085	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,3-Trichloropropane	ND	0.016	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0072	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Xylenes, Total	8.8	0.020	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Surr: Dibromofluoromethane	99.1		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
Surr: Toluene-d8	92.5		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
Surr: 4-Bromofluorobenzene	111		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	270	1.0	3.8		mg/Kg	1	8/16/2021 7:35:25 PM	B80534
Surr: BFB	79.8	0	70-130		%Rec	1	8/16/2021 7:35:25 PM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	24	4.5	9.1		mg/Kg	1	8/18/2021 4:40:12 PM	61999
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	8/18/2021 4:40:12 PM	61999
Surr: DNOP	124	0	70-130		%Rec	1	8/18/2021 4:40:12 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.73	0.24	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
Barium	380	9.7	19		mg/Kg	200	8/25/2021 5:46:25 PM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
Chromium	15	0.24	0.49		mg/Kg	5	8/27/2021 1:25:07 PM	62061
Lead	12	0.24	0.49		mg/Kg	5	8/28/2021 2:24:16 PM	62061
Selenium	0.82	0.28	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0054	0.0026	0.033	J	mg/Kg	1	8/25/2021 10:50:04 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.99	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Chloronaphthalene	ND	0.93	2.4	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Dimethyl phthalate	ND	0.90	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Fluorene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Nitrophenol	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Phenol	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.017	0.0057	0.015		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Toluene	ND	0.0038	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Ethylbenzene	ND	0.0072	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.017	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,4-Trimethylbenzene	0.0058	0.0042	0.029	J	mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0066	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0067	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.012	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Naphthalene	ND	0.011	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1-Methylnaphthalene	ND	0.034	0.12		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Methylnaphthalene	ND	0.027	0.12		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Acetone	ND	0.096	0.44		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromobenzene	ND	0.0062	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromoform	ND	0.0071	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromomethane	ND	0.049	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Butanone	ND	0.13	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Carbon tetrachloride	ND	0.0033	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chlorobenzene	ND	0.0053	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chloroethane	ND	0.011	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chloroform	ND	0.0042	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chloromethane	ND	0.010	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Chlorotoluene	ND	0.0039	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB2 (5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
cis-1,2-DCE	ND	0.015	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
cis-1,3-Dichloropropene	ND	0.0044	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.013	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Dibromochloromethane	ND	0.0047	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Dibromomethane	ND	0.0069	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dichlorobenzene	ND	0.0061	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,3-Dichlorobenzene	ND	0.0056	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,4-Dichlorobenzene	ND	0.0079	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1-Dichloroethane	ND	0.0086	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1-Dichloroethene	ND	0.0063	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dichloropropane	ND	0.0057	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,3-Dichloropropane	ND	0.0065	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2,2-Dichloropropane	ND	0.0042	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1-Dichloropropene	ND	0.0036	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Hexachlorobutadiene	ND	0.020	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Isopropylbenzene	ND	0.0055	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
4-Isopropyltoluene	ND	0.0076	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
4-Methyl-2-pentanone	ND	0.034	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Methylene chloride	ND	0.021	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
n-Butylbenzene	ND	0.0079	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
n-Propylbenzene	ND	0.0047	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
sec-Butylbenzene	ND	0.024	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Styrene	ND	0.0040	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
tert-Butylbenzene	ND	0.0068	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0043	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.0095	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Tetrachloroethene (PCE)	ND	0.0081	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
trans-1,2-DCE	ND	0.0057	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
trans-1,3-Dichloropropene	ND	0.0069	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0045	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,1-Trichloroethane	ND	0.0065	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,2-Trichloroethane	ND	0.0074	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Trichloroethene (TCE)	ND	0.0058	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Trichlorofluoromethane	ND	0.0067	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,3-Trichloropropane	ND	0.012	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598

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D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0056	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Xylenes, Total	ND	0.015	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Surr: Dibromofluoromethane	99.4		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
Surr: 1,2-Dichloroethane-d4	96.5		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
Surr: Toluene-d8	106		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
Surr: 4-Bromofluorobenzene	92.3		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.4	5.0		mg/Kg	1	8/18/2021 1:32:23 PM	R80646
Surr: BFB	94.7	0	70-130		%Rec	1	8/18/2021 1:32:23 PM	R80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	9.9		mg/Kg	1	8/17/2021 8:11:31 PM	61999
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 8:11:31 PM	61999
Surr: DNOP	111	0	70-130		%Rec	1	8/17/2021 8:11:31 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.69	0.26	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
Barium	230	10	21		mg/Kg	200	8/25/2021 5:55:32 PM	62061
Cadmium	ND	0.26	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
Chromium	20	0.26	0.51		mg/Kg	5	8/27/2021 1:29:41 PM	62061
Lead	12	0.26	0.51		mg/Kg	5	8/28/2021 2:27:44 PM	62061
Selenium	0.83	0.30	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
Silver	ND	0.26	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0045	0.0028	0.036	J	mg/Kg	1	8/25/2021 10:52:12 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.085	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Acenaphthylene	ND	0.086	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Aniline	ND	0.066	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Anthracene	ND	0.086	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Azobenzene	ND	0.095	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benz(a)anthracene	ND	0.061	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(a)pyrene	ND	0.090	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(b)fluoranthene	ND	0.10	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(g,h,i)perylene	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(k)fluoranthene	ND	0.071	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzoic acid	ND	0.12	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzyl alcohol	ND	0.078	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-chloroethoxy)methane	ND	0.073	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-chloroethyl)ether	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-ethylhexyl)phthalate	ND	0.20	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Bromophenyl phenyl ether	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Butyl benzyl phthalate	ND	0.058	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Carbazole	ND	0.084	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Chloro-3-methylphenol	ND	0.080	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Chloroaniline	ND	0.092	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Chloronaphthalene	ND	0.090	0.24		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Chlorophenyl phenyl ether	ND	0.081	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.084	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Di-n-butyl phthalate	ND	0.27	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Di-n-octyl phthalate	ND	0.12	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Dibenz(a,h)anthracene	ND	0.10	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Dibenzofuran	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,2-Dichlorobenzene	ND	0.077	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,3-Dichlorobenzene	ND	0.068	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,4-Dichlorobenzene	ND	0.081	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
3,3´-Dichlorobenzidine	ND	0.14	0.24		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Diethyl phthalate	ND	0.31	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Dimethyl phthalate	ND	0.088	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dichlorophenol	ND	0.077	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dimethylphenol	ND	0.068	0.28		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.080	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dinitrophenol	ND	0.048	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dinitrotoluene	ND	0.12	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,6-Dinitrotoluene	ND	0.097	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Fluoranthene	ND	0.077	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Fluorene	ND	0.085	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachlorobenzene	ND	0.085	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachlorobutadiene	ND	0.089	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachloroethane	ND	0.084	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Isophorone	ND	0.078	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1-Methylnaphthalene	ND	0.087	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Methylnaphthalene	ND	0.078	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Methylphenol	ND	0.080	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
3+4-Methylphenol	ND	0.078	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
N-Nitrosodi-n-propylamine	ND	0.088	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
N-Nitrosodiphenylamine	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Naphthalene	ND	0.090	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Nitroaniline	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Nitroaniline	ND	0.12	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Nitrobenzene	ND	0.078	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Nitrophenol	ND	0.082	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Nitrophenol	ND	0.078	0.24		mg/Kg	1	8/25/2021 2:03:31 AM	62052

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.082	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Phenanthrene	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Phenol	ND	0.073	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Pyrene	ND	0.072	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Pyridine	ND	0.15	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,2,4-Trichlorobenzene	ND	0.087	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4,5-Trichlorophenol	ND	0.061	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4,6-Trichlorophenol	ND	0.082	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Surr: 2-Fluorophenol	23.4		20.3-74.1		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: Phenol-d5	31.0		23.1-92.7		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: 2,4,6-Tribromophenol	50.2		17.3-122		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: Nitrobenzene-d5	24.6		24.7-73.2	S	%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: 2-Fluorobiphenyl	28.7		21.5-90.1		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: 4-Terphenyl-d14	122		15-140		%Rec	1	8/25/2021 2:03:31 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.86	0.0078	0.020		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Toluene	0.023	0.0052	0.041	J	mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Ethylbenzene	0.012	0.0099	0.041	J	mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.023	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,4-Trimethylbenzene	ND	0.0057	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0091	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0093	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.016	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Naphthalene	ND	0.015	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1-Methylnaphthalene	ND	0.047	0.16		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Methylnaphthalene	ND	0.038	0.16		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Acetone	ND	0.13	0.61		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromobenzene	ND	0.0086	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromodichloromethane	ND	0.0052	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromoform	ND	0.0098	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Butanone	ND	0.18	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Carbon disulfide	ND	0.017	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Carbon tetrachloride	ND	0.0045	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chlorobenzene	ND	0.0073	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chloroethane	ND	0.015	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chloroform	ND	0.0058	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Chlorotoluene	ND	0.0054	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB2 (7.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
cis-1,2-DCE	ND	0.020	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
cis-1,3-Dichloropropene	ND	0.0060	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.018	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Dibromochloromethane	ND	0.0065	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Dibromomethane	ND	0.0095	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dichlorobenzene	ND	0.0085	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,3-Dichlorobenzene	ND	0.0077	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,4-Dichlorobenzene	ND	0.011	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Dichlorodifluoromethane	ND	0.016	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1-Dichloroethane	ND	0.012	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1-Dichloroethene	ND	0.0087	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dichloropropane	ND	0.0079	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,3-Dichloropropane	ND	0.0089	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2,2-Dichloropropane	ND	0.0058	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1-Dichloropropene	ND	0.0049	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Hexachlorobutadiene	ND	0.028	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Hexanone	ND	0.018	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Isopropylbenzene	ND	0.0075	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
4-Isopropyltoluene	ND	0.010	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
4-Methyl-2-pentanone	ND	0.047	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
n-Butylbenzene	ND	0.011	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
n-Propylbenzene	ND	0.0066	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
sec-Butylbenzene	ND	0.034	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Styrene	ND	0.0055	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
tert-Butylbenzene	ND	0.0094	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0060	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Tetrachloroethene (PCE)	ND	0.011	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
trans-1,2-DCE	ND	0.0079	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
trans-1,3-Dichloropropene	ND	0.0095	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0063	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,4-Trichlorobenzene	ND	0.014	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,1-Trichloroethane	ND	0.0090	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,2-Trichloroethane	ND	0.010	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Trichloroethene (TCE)	ND	0.0080	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Trichlorofluoromethane	ND	0.0092	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,3-Trichloropropane	ND	0.017	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0078	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Xylenes, Total	ND	0.021	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
Surr: 1,2-Dichloroethane-d4	99.8		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
Surr: Toluene-d8	103		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
Surr: 4-Bromofluorobenzene	92.9		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	9.4	1.1	4.1		mg/Kg	1	8/17/2021 6:53:09 PM	G80598
Surr: BFB	94.6	0	70-130		%Rec	1	8/17/2021 6:53:09 PM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.6	9.3		mg/Kg	1	8/17/2021 8:21:40 PM	61999
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/17/2021 8:21:40 PM	61999
Surr: DNOP	115	0	70-130		%Rec	1	8/17/2021 8:21:40 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.74	0.26	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
Barium	270	10	21		mg/Kg	200	8/26/2021 9:54:34 AM	62061
Cadmium	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
Chromium	21	0.26	0.52		mg/Kg	5	8/27/2021 1:34:27 PM	62061
Lead	13	0.26	0.52		mg/Kg	5	8/28/2021 2:31:11 PM	62061
Selenium	0.83	0.30	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
Silver	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0050	0.0026	0.033	J	mg/Kg	1	8/25/2021 10:54:19 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.089	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Acenaphthylene	ND	0.090	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Aniline	ND	0.069	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Anthracene	ND	0.090	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Azobenzene	ND	0.099	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benz(a)anthracene	ND	0.064	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(a)pyrene	ND	0.093	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(b)fluoranthene	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(k)fluoranthene	ND	0.074	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzoic acid	ND	0.12	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzyl alcohol	ND	0.081	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-chloroethoxy)methane	ND	0.076	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-ethylhexyl)phthalate	ND	0.21	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Butyl benzyl phthalate	ND	0.060	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Carbazole	ND	0.087	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Chloro-3-methylphenol	ND	0.084	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Chloroaniline	ND	0.096	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Chloronaphthalene	ND	0.094	0.25		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Chlorophenyl phenyl ether	ND	0.084	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.087	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Di-n-butyl phthalate	ND	0.28	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Di-n-octyl phthalate	ND	0.13	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,2-Dichlorobenzene	ND	0.080	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,3-Dichlorobenzene	ND	0.071	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,4-Dichlorobenzene	ND	0.084	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Diethyl phthalate	ND	0.32	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Dimethyl phthalate	ND	0.092	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dichlorophenol	ND	0.080	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dimethylphenol	ND	0.070	0.30		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.083	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dinitrophenol	ND	0.050	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,6-Dinitrotoluene	ND	0.10	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Fluoranthene	ND	0.080	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Fluorene	ND	0.088	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachlorobenzene	ND	0.088	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachlorobutadiene	ND	0.093	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachloroethane	ND	0.088	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Isophorone	ND	0.081	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1-Methylnaphthalene	ND	0.091	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Methylnaphthalene	ND	0.082	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Methylphenol	ND	0.083	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
3+4-Methylphenol	ND	0.082	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
N-Nitrosodi-n-propylamine	ND	0.092	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Naphthalene	ND	0.093	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
3-Nitroaniline	ND	0.12	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Nitrobenzene	ND	0.081	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Nitrophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Nitrophenol	ND	0.081	0.25		mg/Kg	1	8/25/2021 2:45:01 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.086	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Phenanthrene	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Phenol	0.14	0.076	0.20	J	mg/Kg	1	8/25/2021 2:45:01 AM	62052
Pyrene	ND	0.075	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Pyridine	ND	0.16	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,2,4-Trichlorobenzene	ND	0.091	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4,6-Trichlorophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Surr: 2-Fluorophenol	69.6		20.3-74.1		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: Phenol-d5	81.7		23.1-92.7		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: 2,4,6-Tribromophenol	72.0		17.3-122		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: Nitrobenzene-d5	57.0		24.7-73.2		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: 2-Fluorobiphenyl	51.4		21.5-90.1		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: 4-Terphenyl-d14	130		15-140		%Rec	1	8/25/2021 2:45:01 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.2	0.0081	0.021		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Toluene	0.056	0.0054	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Ethylbenzene	0.036	0.010	0.042	J	mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.024	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,4-Trimethylbenzene	ND	0.0060	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0095	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0096	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.017	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Naphthalene	ND	0.016	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1-Methylnaphthalene	ND	0.048	0.17		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Methylnaphthalene	ND	0.039	0.17		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Acetone	ND	0.14	0.63		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromobenzene	ND	0.0090	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromodichloromethane	ND	0.0054	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromoform	ND	0.010	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromomethane	ND	0.070	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Butanone	ND	0.18	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Carbon disulfide	ND	0.017	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Carbon tetrachloride	ND	0.0047	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chlorobenzene	ND	0.0076	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chloroethane	ND	0.016	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chloroform	ND	0.0060	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chloromethane	ND	0.015	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Chlorotoluene	ND	0.0057	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.022	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
cis-1,2-DCE	ND	0.021	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
cis-1,3-Dichloropropene	ND	0.0063	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.018	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Dibromochloromethane	ND	0.0068	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Dibromomethane	ND	0.0099	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dichlorobenzene	ND	0.0088	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,3-Dichlorobenzene	ND	0.0080	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,4-Dichlorobenzene	ND	0.011	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Dichlorodifluoromethane	ND	0.016	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1-Dichloroethane	ND	0.012	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1-Dichloroethene	ND	0.0091	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dichloropropane	ND	0.0082	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,3-Dichloropropane	ND	0.0093	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2,2-Dichloropropane	ND	0.0060	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1-Dichloropropene	ND	0.0051	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Hexachlorobutadiene	ND	0.029	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Hexanone	ND	0.018	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Isopropylbenzene	ND	0.0078	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
4-Isopropyltoluene	ND	0.011	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
4-Methyl-2-pentanone	ND	0.049	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Methylene chloride	ND	0.031	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
n-Butylbenzene	ND	0.011	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
n-Propylbenzene	ND	0.0068	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
sec-Butylbenzene	ND	0.035	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Styrene	ND	0.0058	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
tert-Butylbenzene	ND	0.0098	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0062	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.014	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Tetrachloroethene (PCE)	ND	0.012	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
trans-1,2-DCE	ND	0.0082	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
trans-1,3-Dichloropropene	ND	0.0099	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0065	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,4-Trichlorobenzene	ND	0.015	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,1-Trichloroethane	ND	0.0093	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,2-Trichloroethane	ND	0.011	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Trichloroethene (TCE)	ND	0.0083	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Trichlorofluoromethane	ND	0.0096	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,3-Trichloropropane	ND	0.018	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0081	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Xylenes, Total	0.048	0.022	0.084	J	mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Surr: Dibromofluoromethane	99.8		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
Surr: 1,2-Dichloroethane-d4	98.7		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
Surr: Toluene-d8	105		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
Surr: 4-Bromofluorobenzene	93.0		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	10	1.2	4.2		mg/Kg	1	8/17/2021 7:50:34 PM	G80598
Surr: BFB	93.2	0	70-130		%Rec	1	8/17/2021 7:50:34 PM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	150	4.4	8.8		mg/Kg	1	8/20/2021 11:56:58 AM	61999
Motor Oil Range Organics (MRO)	200	44	44		mg/Kg	1	8/20/2021 11:56:58 AM	61999
Surr: DNOP	121	0	70-130		%Rec	1	8/20/2021 11:56:58 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.87	0.25	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
Barium	460	25	50		mg/Kg	500	8/26/2021 10:03:41 AM	62061
Cadmium	ND	0.25	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
Chromium	19	0.25	0.50		mg/Kg	5	8/27/2021 1:39:01 PM	62061
Lead	19	0.50	1.0		mg/Kg	10	8/30/2021 2:22:37 PM	62061
Selenium	0.75	0.29	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
Silver	ND	0.25	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.031	0.0025	0.032	J	mg/Kg	1	8/25/2021 10:56:26 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Acenaphthylene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Anthracene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Azobenzene	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benz(a)anthracene	ND	0.61	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(a)pyrene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(g,h,i)perylene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(k)fluoranthene	ND	0.71	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzoic acid	ND	1.2	9.5	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzyl alcohol	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-chloroethyl)ether	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.96	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.0	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Bromophenyl phenyl ether	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Carbazole	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Chloro-3-methylphenol	ND	0.80	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Chloroaniline	ND	0.92	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Chloronaphthalene	ND	0.90	2.4	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Di-n-butyl phthalate	ND	2.6	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Dibenzofuran	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,2-Dichlorobenzene	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,4-Dichlorobenzene	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Diethyl phthalate	ND	3.1	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Dimethyl phthalate	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dichlorophenol	ND	0.77	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dimethylphenol	ND	0.67	2.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dinitrophenol	ND	0.48	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,6-Dinitrotoluene	ND	0.97	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Fluoranthene	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Fluorene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachlorobenzene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachlorobutadiene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachloroethane	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Isophorone	ND	0.77	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1-Methylnaphthalene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Methylnaphthalene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
3+4-Methylphenol	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
N-Nitrosodi-n-propylamine	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
N-Nitrosodiphenylamine	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Naphthalene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Nitroaniline	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Nitrobenzene	ND	0.78	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Nitrophenol	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Nitrophenol	ND	0.78	2.4	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.82	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Phenanthrene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Phenol	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Pyrene	ND	0.72	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,2,4-Trichlorobenzene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4,5-Trichlorophenol	ND	0.60	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4,6-Trichlorophenol	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.58	0.0065	0.017		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Toluene	0.0051	0.0043	0.034	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Ethylbenzene	0.81	0.0082	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Methyl tert-butyl ether (MTBE)	0.039	0.019	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,4-Trimethylbenzene	0.15	0.0047	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0075	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0076	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.013	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Naphthalene	0.12	0.012	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1-Methylnaphthalene	0.080	0.038	0.13	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Methylnaphthalene	0.074	0.031	0.13	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Acetone	ND	0.11	0.50		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromobenzene	ND	0.0071	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromodichloromethane	ND	0.0043	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromoform	ND	0.0081	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromomethane	ND	0.056	0.10		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Butanone	ND	0.15	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Carbon disulfide	ND	0.014	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Carbon tetrachloride	ND	0.0037	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chlorobenzene	ND	0.0060	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chloroethane	ND	0.013	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chloroform	ND	0.0048	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Chlorotoluene	ND	0.0045	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
cis-1,2-DCE	ND	0.017	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
cis-1,3-Dichloropropene	ND	0.0050	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.014	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Dibromochloromethane	ND	0.0054	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Dibromomethane	ND	0.0078	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dichlorobenzene	ND	0.0070	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,3-Dichlorobenzene	ND	0.0063	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,4-Dichlorobenzene	ND	0.0090	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Dichlorodifluoromethane	ND	0.013	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1-Dichloroethane	ND	0.0098	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1-Dichloroethene	ND	0.0072	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dichloropropane	ND	0.0065	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,3-Dichloropropane	ND	0.0074	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2,2-Dichloropropane	ND	0.0048	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1-Dichloropropene	ND	0.0040	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Hexachlorobutadiene	ND	0.023	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Hexanone	ND	0.015	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Isopropylbenzene	0.086	0.0062	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
4-Isopropyltoluene	0.015	0.0086	0.034	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
4-Methyl-2-pentanone	ND	0.039	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Methylene chloride	ND	0.024	0.10		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
n-Butylbenzene	0.082	0.0090	0.10	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
n-Propylbenzene	0.30	0.0054	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
sec-Butylbenzene	0.077	0.028	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Styrene	ND	0.0046	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
tert-Butylbenzene	ND	0.0078	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0049	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.011	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Tetrachloroethene (PCE)	ND	0.0092	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
trans-1,2-DCE	ND	0.0065	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
trans-1,3-Dichloropropene	ND	0.0079	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0052	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,4-Trichlorobenzene	ND	0.012	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,1-Trichloroethane	ND	0.0074	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,2-Trichloroethane	ND	0.0084	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Trichloroethene (TCE)	ND	0.0066	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Trichlorofluoromethane	ND	0.0076	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,3-Trichloropropane	ND	0.014	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0064	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Xylenes, Total	0.14	0.018	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Surr: Dibromofluoromethane	87.5		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
Surr: 1,2-Dichloroethane-d4	92.7		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
Surr: Toluene-d8	102		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
Surr: 4-Bromofluorobenzene	103		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	100	0.93	3.4		mg/Kg	1	8/17/2021 8:47:52 PM	G80598
Surr: BFB	90.6	0	70-130		%Rec	1	8/17/2021 8:47:52 PM	G80598

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D	Sample Diluted Due to Matrix
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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	150	9.2	19		mg/Kg	2	8/20/2021 5:54:55 PM	61999
Motor Oil Range Organics (MRO)	180	93	93		mg/Kg	2	8/20/2021 5:54:55 PM	61999
Surr: DNOP	121	0	70-130		%Rec	2	8/20/2021 5:54:55 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.73	0.24	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
Barium	460	24	49		mg/Kg	500	8/26/2021 10:45:49 AM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
Chromium	16	0.24	0.49		mg/Kg	5	8/27/2021 1:43:35 PM	62061
Lead	14	0.49	0.97		mg/Kg	10	8/30/2021 2:26:04 PM	62061
Selenium	0.78	0.28	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.011	0.0025	0.032	J	mg/Kg	1	8/25/2021 10:58:34 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzoic acid	ND	1.2	9.7	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Chloro-3-methylphenol	ND	0.82	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Diethyl phthalate	ND	3.2	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Dimethyl phthalate	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dinitrophenol	ND	0.49	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,6-Dinitrotoluene	ND	0.99	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Nitrophenol	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052

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PQL	Practical Quanitative Limit
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.13	0.0059	0.015		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Toluene	ND	0.0039	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Ethylbenzene	0.062	0.0075	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Methyl tert-butyl ether (MTBE)	0.061	0.017	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,4-Trimethylbenzene	0.011	0.0043	0.031	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,3,5-Trimethylbenzene	ND	0.0069	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.0070	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Naphthalene	0.035	0.011	0.061	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1-Methylnaphthalene	0.066	0.035	0.12	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Methylnaphthalene	0.074	0.028	0.12	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Acetone	ND	0.10	0.46		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromobenzene	ND	0.0065	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromodichloromethane	ND	0.0039	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromoform	ND	0.0074	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromomethane	ND	0.051	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Butanone	ND	0.13	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Carbon tetrachloride	ND	0.0034	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chlorobenzene	ND	0.0055	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chloroethane	ND	0.011	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chloroform	ND	0.0043	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chloromethane	ND	0.011	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Chlorotoluene	ND	0.0041	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB3 (2.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.013	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Dibromochloromethane	ND	0.0049	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Dibromomethane	ND	0.0072	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dichlorobenzene	ND	0.0064	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,3-Dichlorobenzene	ND	0.0058	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,4-Dichlorobenzene	ND	0.0082	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1-Dichloroethane	ND	0.0089	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1-Dichloroethene	ND	0.0066	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dichloropropane	ND	0.0060	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,3-Dichloropropane	ND	0.0067	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2,2-Dichloropropane	ND	0.0044	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1-Dichloropropene	ND	0.0037	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Hexachlorobutadiene	ND	0.021	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Hexanone	ND	0.013	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Isopropylbenzene	ND	0.0057	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
4-Isopropyltoluene	ND	0.0079	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Methylene chloride	ND	0.022	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
n-Butylbenzene	ND	0.0082	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
n-Propylbenzene	0.021	0.0049	0.031	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
sec-Butylbenzene	ND	0.025	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Styrene	ND	0.0042	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
tert-Butylbenzene	ND	0.0071	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0045	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.0099	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Tetrachloroethene (PCE)	ND	0.0084	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
trans-1,2-DCE	ND	0.0059	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
trans-1,3-Dichloropropene	ND	0.0072	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0047	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,1-Trichloroethane	ND	0.0068	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,2-Trichloroethane	ND	0.0077	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Trichloroethene (TCE)	ND	0.0060	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Trichlorofluoromethane	ND	0.0070	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,3-Trichloropropane	ND	0.013	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534

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Qualifiers:

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0058	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Xylenes, Total	ND	0.016	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
Surr: 1,2-Dichloroethane-d4	106		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
Surr: Toluene-d8	96.0		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
Surr: 4-Bromofluorobenzene	89.1		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	4.2	0.85	3.1		mg/Kg	1	8/16/2021 9:58:11 PM	B80534
Surr: BFB	95.3	0	70-130		%Rec	1	8/16/2021 9:58:11 PM	B80534

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	6.4	4.9	9.9	J	mg/Kg	1	8/18/2021 3:52:48 PM	61999
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/18/2021 3:52:48 PM	61999
Surr: DNOP	121	0	70-130		%Rec	1	8/18/2021 3:52:48 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.73	0.24	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
Barium	420	9.6	19		mg/Kg	200	8/26/2021 10:59:29 AM	62061
Cadmium	ND	0.24	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
Chromium	13	0.24	0.48		mg/Kg	5	8/27/2021 1:48:09 PM	62061
Lead	11	0.24	0.48		mg/Kg	5	8/28/2021 2:41:36 PM	62061
Selenium	0.65	0.28	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
Silver	ND	0.24	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.022	0.0025	0.032	J	mg/Kg	1	8/25/2021 11:00:41 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-ethylhexyl)phthalate	3.3	2.1	5.0	JD	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.019	0.0093	0.024	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Toluene	ND	0.0062	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Ethylbenzene	0.029	0.012	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Methyl tert-butyl ether (MTBE)	0.032	0.027	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,4-Trimethylbenzene	0.026	0.0068	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Naphthalene	0.063	0.018	0.097	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
1-Methylnaphthalene	0.15	0.056	0.19	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Methylnaphthalene	0.13	0.045	0.19	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Acetone	0.17	0.16	0.73	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromobenzene	ND	0.010	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromodichloromethane	0.0094	0.0062	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromoform	ND	0.012	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromomethane	ND	0.080	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Butanone	0.45	0.21	0.48	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Carbon disulfide	ND	0.020	0.48		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Carbon tetrachloride	ND	0.0054	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chlorobenzene	ND	0.0087	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chloroethane	ND	0.018	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chloroform	ND	0.0069	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Chlorotoluene	ND	0.0065	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.025	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
cis-1,2-DCE	ND	0.024	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
cis-1,3-Dichloropropene	ND	0.0072	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Dibromochloromethane	ND	0.0078	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Dibromomethane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dichlorobenzene	ND	0.010	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,3-Dichlorobenzene	ND	0.0092	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,4-Dichlorobenzene	ND	0.013	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Dichlorodifluoromethane	ND	0.019	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1-Dichloroethane	ND	0.014	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1-Dichloroethene	ND	0.010	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dichloropropane	ND	0.0094	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,3-Dichloropropane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2,2-Dichloropropane	ND	0.0069	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1-Dichloropropene	ND	0.0059	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Hexachlorobutadiene	ND	0.033	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Hexanone	0.045	0.021	0.48	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Isopropylbenzene	ND	0.0090	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
4-Isopropyltoluene	ND	0.012	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
4-Methyl-2-pentanone	0.066	0.056	0.48	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Methylene chloride	ND	0.035	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
n-Propylbenzene	0.017	0.0078	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
sec-Butylbenzene	ND	0.040	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Styrene	ND	0.0066	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
tert-Butylbenzene	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,1,2-Tetrachloroethane	ND	0.0071	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,2,2-Tetrachloroethane	ND	0.016	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Tetrachloroethene (PCE)	ND	0.013	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
trans-1,2-DCE	ND	0.0094	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
trans-1,3-Dichloropropene	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,3-Trichlorobenzene	ND	0.0075	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,1-Trichloroethane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,2-Trichloroethane	ND	0.012	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Trichloroethene (TCE)	ND	0.0095	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Trichlorofluoromethane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,3-Trichloropropane	ND	0.020	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0092	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Xylenes, Total	ND	0.025	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Surr: Dibromofluoromethane	96.6		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
Surr: 1,2-Dichloroethane-d4	104		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
Surr: Toluene-d8	103		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
Surr: 4-Bromofluorobenzene	113		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	5.0	1.3	4.8		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Surr: BFB	105	0	70-130		%Rec	1	8/24/2021 1:02:29 AM	62009

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	14	4.8	9.7		mg/Kg	1	8/17/2021 9:02:14 PM	61999
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 9:02:14 PM	61999
Surr: DNOP	122	0	70-130		%Rec	1	8/17/2021 9:02:14 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.85	0.26	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
Barium	470	10	21		mg/Kg	200	8/26/2021 11:08:37 AM	62061
Cadmium	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
Chromium	11	0.21	0.42		mg/Kg	4	8/30/2021 12:41:53 PM	62061
Lead	8.6	0.21	0.42		mg/Kg	4	8/30/2021 12:41:53 PM	62061
Selenium	0.74	0.30	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
Silver	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0082	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:02:50 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(a)pyrene	ND	0.90	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzoic acid	ND	1.2	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Chloroaniline	ND	0.93	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052

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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Naphthalene	ND	0.90	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
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S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.14	0.0075	0.019		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Toluene	ND	0.0050	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Ethylbenzene	0.065	0.0095	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Methyl tert-butyl ether (MTBE)	0.080	0.022	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,4-Trimethylbenzene	ND	0.0055	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,3,5-Trimethylbenzene	ND	0.0087	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dichloroethane (EDC)	ND	0.0089	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dibromoethane (EDB)	ND	0.015	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Naphthalene	0.035	0.014	0.078	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1-Methylnaphthalene	0.091	0.045	0.16	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Methylnaphthalene	0.037	0.036	0.16	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Acetone	ND	0.13	0.58		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromobenzene	ND	0.0082	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromodichloromethane	ND	0.0049	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromoform	ND	0.0094	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromomethane	ND	0.064	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Butanone	ND	0.17	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Carbon disulfide	ND	0.016	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Carbon tetrachloride	ND	0.0043	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chlorobenzene	ND	0.0070	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chloroethane	ND	0.015	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chloroform	ND	0.0055	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Chlorotoluene	ND	0.0052	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB3 (7.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
cis-1,2-DCE	ND	0.019	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
cis-1,3-Dichloropropene	ND	0.0058	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Dibromochloromethane	ND	0.0062	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Dibromomethane	ND	0.0091	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dichlorobenzene	ND	0.0081	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,3-Dichlorobenzene	ND	0.0073	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,4-Dichlorobenzene	ND	0.010	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Dichlorodifluoromethane	ND	0.015	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1-Dichloroethane	ND	0.011	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1-Dichloroethene	ND	0.0083	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dichloropropane	ND	0.0076	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,3-Dichloropropane	ND	0.0085	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2,2-Dichloropropane	ND	0.0055	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1-Dichloropropene	ND	0.0047	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Hexachlorobutadiene	ND	0.026	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Hexanone	ND	0.017	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Isopropylbenzene	ND	0.0072	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
4-Isopropyltoluene	ND	0.010	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
4-Methyl-2-pentanone	ND	0.045	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Methylene chloride	ND	0.028	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
n-Butylbenzene	ND	0.010	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
n-Propylbenzene	0.022	0.0063	0.039	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
sec-Butylbenzene	ND	0.032	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Styrene	ND	0.0053	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
tert-Butylbenzene	ND	0.0090	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0057	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
trans-1,2-DCE	ND	0.0075	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
trans-1,3-Dichloropropene	ND	0.0091	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,3-Trichlorobenzene	ND	0.0060	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,1-Trichloroethane	ND	0.0086	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,2-Trichloroethane	ND	0.0097	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Trichloroethene (TCE)	ND	0.0076	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Trichlorofluoromethane	ND	0.0088	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,3-Trichloropropane	ND	0.016	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0074	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Xylenes, Total	ND	0.020	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Surr: Dibromofluoromethane	99.4		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
Surr: 1,2-Dichloroethane-d4	96.3		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
Surr: Toluene-d8	103		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
Surr: 4-Bromofluorobenzene	90.5		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	3.0	1.1	3.9	J	mg/Kg	1	8/17/2021 1:18:21 AM	B80534
Surr: BFB	96.0	0	70-130		%Rec	1	8/17/2021 1:18:21 AM	B80534

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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	6.3	4.5	9.1	J	mg/Kg	1	8/17/2021 9:12:17 PM	61999
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	8/17/2021 9:12:17 PM	61999
Surr: DNOP	120	0	70-130		%Rec	1	8/17/2021 9:12:17 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.82	0.24	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
Barium	460	9.7	19		mg/Kg	200	8/26/2021 11:17:44 AM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
Chromium	12	0.19	0.39		mg/Kg	4	8/30/2021 12:45:20 PM	62061
Lead	7.7	0.19	0.39		mg/Kg	4	8/30/2021 12:45:20 PM	62061
Selenium	0.61	0.28	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.012	0.0027	0.033	J	mg/Kg	1	8/25/2021 11:04:59 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.088	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Acenaphthylene	ND	0.089	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Aniline	ND	0.068	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Anthracene	ND	0.089	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Azobenzene	ND	0.098	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benz(a)anthracene	ND	0.063	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(a)pyrene	ND	0.093	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(b)fluoranthene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(k)fluoranthene	ND	0.074	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzoic acid	ND	0.12	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzyl alcohol	ND	0.080	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-chloroethoxy)methane	ND	0.075	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-ethylhexyl)phthalate	0.86	0.21	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Butyl benzyl phthalate	ND	0.060	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Carbazole	ND	0.086	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Chloro-3-methylphenol	ND	0.083	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Chloroaniline	ND	0.096	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Chloronaphthalene	ND	0.093	0.25		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Chlorophenyl phenyl ether	ND	0.083	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.087	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Di-n-butyl phthalate	ND	0.27	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Di-n-octyl phthalate	ND	0.13	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,2-Dichlorobenzene	ND	0.079	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,3-Dichlorobenzene	ND	0.070	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,4-Dichlorobenzene	ND	0.083	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Diethyl phthalate	ND	0.32	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Dimethyl phthalate	ND	0.091	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dichlorophenol	ND	0.080	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dimethylphenol	ND	0.070	0.29		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.083	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dinitrophenol	ND	0.049	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dinitrotoluene	ND	0.12	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,6-Dinitrotoluene	ND	0.10	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Fluoranthene	ND	0.079	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Fluorene	ND	0.088	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachlorobenzene	ND	0.087	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachlorobutadiene	ND	0.092	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachloroethane	ND	0.087	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Isophorone	ND	0.080	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1-Methylnaphthalene	ND	0.090	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Methylnaphthalene	ND	0.081	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Methylphenol	ND	0.083	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
3+4-Methylphenol	ND	0.081	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
N-Nitrosodi-n-propylamine	ND	0.091	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Naphthalene	ND	0.092	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
3-Nitroaniline	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Nitroaniline	ND	0.13	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Nitrobenzene	ND	0.081	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Nitrophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Nitrophenol	ND	0.081	0.25		mg/Kg	1	8/25/2021 5:31:14 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.085	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Phenanthrene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Phenol	ND	0.076	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Pyrene	ND	0.074	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Pyridine	ND	0.16	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,2,4-Trichlorobenzene	ND	0.090	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4,6-Trichlorophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Surr: 2-Fluorophenol	40.6		20.3-74.1		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: Phenol-d5	46.5		23.1-92.7		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: 2,4,6-Tribromophenol	55.8		17.3-122		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: Nitrobenzene-d5	39.1		24.7-73.2		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: 2-Fluorobiphenyl	39.6		21.5-90.1		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: 4-Terphenyl-d14	78.3		15-140		%Rec	1	8/25/2021 5:31:14 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.066	0.0078	0.020		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Toluene	ND	0.0052	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Ethylbenzene	0.026	0.0098	0.040	J	mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Methyl tert-butyl ether (MTBE)	0.043	0.023	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,4-Trimethylbenzene	ND	0.0057	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,3,5-Trimethylbenzene	ND	0.0091	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dichloroethane (EDC)	ND	0.0092	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dibromoethane (EDB)	ND	0.016	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Naphthalene	ND	0.015	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1-Methylnaphthalene	ND	0.046	0.16		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Methylnaphthalene	ND	0.037	0.16		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Acetone	ND	0.13	0.60		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromobenzene	ND	0.0086	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromodichloromethane	ND	0.0051	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromoform	ND	0.0097	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Butanone	ND	0.17	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Carbon disulfide	ND	0.017	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Carbon tetrachloride	ND	0.0045	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chlorobenzene	ND	0.0073	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chloroethane	ND	0.015	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chloroform	ND	0.0057	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Chlorotoluene	ND	0.0054	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
cis-1,2-DCE	ND	0.020	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
cis-1,3-Dichloropropene	ND	0.0060	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Dibromochloromethane	ND	0.0065	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Dibromomethane	ND	0.0094	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dichlorobenzene	ND	0.0084	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,3-Dichlorobenzene	ND	0.0076	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,4-Dichlorobenzene	ND	0.011	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Dichlorodifluoromethane	ND	0.016	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1-Dichloroethane	ND	0.012	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1-Dichloroethene	ND	0.0086	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dichloropropane	ND	0.0079	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,3-Dichloropropane	ND	0.0089	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2,2-Dichloropropane	ND	0.0057	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1-Dichloropropene	ND	0.0049	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Hexachlorobutadiene	ND	0.027	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Hexanone	ND	0.018	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Isopropylbenzene	ND	0.0075	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
4-Isopropyltoluene	ND	0.010	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
4-Methyl-2-pentanone	ND	0.047	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
n-Butylbenzene	ND	0.011	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
n-Propylbenzene	0.0093	0.0065	0.040	J	mg/Kg	1	8/17/2021 11:10:55 PM	A80598
sec-Butylbenzene	ND	0.033	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Styrene	ND	0.0055	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
tert-Butylbenzene	ND	0.0093	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0059	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
trans-1,2-DCE	ND	0.0078	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
trans-1,3-Dichloropropene	ND	0.0095	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,3-Trichlorobenzene	ND	0.0062	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,1-Trichloroethane	ND	0.0089	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,2-Trichloroethane	ND	0.010	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Trichloroethene (TCE)	ND	0.0079	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Trichlorofluoromethane	ND	0.0091	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,3-Trichloropropane	ND	0.017	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598

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PQL	Practical Quanitative Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0077	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Xylenes, Total	ND	0.021	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
Surr: 1,2-Dichloroethane-d4	96.5		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
Surr: Toluene-d8	103		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
Surr: 4-Bromofluorobenzene	93.5		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	1.5	1.1	4.0	J	mg/Kg	1	8/17/2021 1:46:56 AM	B80534
Surr: BFB	94.8	0	70-130		%Rec	1	8/17/2021 1:46:56 AM	B80534

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	4000	90	180		mg/Kg	20	8/19/2021 6:55:30 AM	61999
Motor Oil Range Organics (MRO)	1700	910	910		mg/Kg	20	8/19/2021 6:55:30 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 6:55:30 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	2.0	1.0	2.0	J	mg/Kg	20	8/27/2021 2:15:35 PM	62061
Barium	450	25	50		mg/Kg	500	8/26/2021 11:40:32 AM	62061
Cadmium	ND	1.0	2.0		mg/Kg	20	8/27/2021 2:15:35 PM	62061
Chromium	87	1.0	2.0		mg/Kg	20	8/27/2021 2:15:35 PM	62061
Lead	9.3	1.0	2.0		mg/Kg	20	8/28/2021 2:58:55 PM	62061
Selenium	2.0	1.1	2.0	J	mg/Kg	20	8/27/2021 2:15:35 PM	62061
Silver	ND	1.0	2.0		mg/Kg	20	8/27/2021 2:15:35 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.063	0.0027	0.034		mg/Kg	1	8/25/2021 11:07:10 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Acenaphthylene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Aniline	ND	17	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Anthracene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Azobenzene	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benz(a)anthracene	ND	16	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(a)pyrene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(b)fluoranthene	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(g,h,i)perylene	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(k)fluoranthene	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzoic acid	ND	31	250	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzyl alcohol	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-chloroethoxy)methane	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-chloroethyl)ether	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-chloroisopropyl)ether	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-ethylhexyl)phthalate	ND	53	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Bromophenyl phenyl ether	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Butyl benzyl phthalate	ND	15	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Carbazole	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Chloro-3-methylphenol	ND	21	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Chloronaphthalene	ND	23	62	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Chlorophenol	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Chlorophenyl phenyl ether	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052

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Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Di-n-butyl phthalate	ND	69	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Di-n-octyl phthalate	ND	32	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Dibenz(a,h)anthracene	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Dibenzofuran	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,2-Dichlorobenzene	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,3-Dichlorobenzene	ND	18	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,4-Dichlorobenzene	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
3,3´-Dichlorobenzidine	ND	37	62	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Diethyl phthalate	ND	80	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Dimethyl phthalate	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dichlorophenol	ND	20	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dimethylphenol	ND	18	74	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4,6-Dinitro-2-methylphenol	ND	21	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dinitrophenol	ND	12	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dinitrotoluene	ND	30	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Fluoranthene	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Fluorene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachlorobenzene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachlorobutadiene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachlorocyclopentadiene	ND	28	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachloroethane	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Indeno(1,2,3-cd)pyrene	ND	28	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Isophorone	ND	20	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1-Methylnaphthalene	32	23	49	JD	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Methylnaphthalene	41	20	49	JD	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Methylphenol	ND	21	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
3+4-Methylphenol	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
N-Nitrosodi-n-propylamine	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
N-Nitrosodimethylamine	ND	37	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
N-Nitrosodiphenylamine	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Naphthalene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Nitroaniline	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
3-Nitroaniline	ND	29	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Nitroaniline	ND	32	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Nitrobenzene	ND	20	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Nitrophenol	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Nitrophenol	ND	20	62	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Phenanthrene	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Phenol	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Pyrene	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Pyridine	ND	40	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,2,4-Trichlorobenzene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4,5-Trichlorophenol	ND	16	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4,6-Trichlorophenol	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.87	0.047	0.12		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Toluene	ND	0.032	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Ethylbenzene	ND	0.060	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Methyl tert-butyl ether (MTBE)	0.53	0.14	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,4-Trimethylbenzene	1.4	0.035	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,3,5-Trimethylbenzene	0.57	0.055	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dichloroethane (EDC)	ND	0.056	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dibromoethane (EDB)	ND	0.096	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Naphthalene	4.2	0.091	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1-Methylnaphthalene	22	0.28	0.98		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Methylnaphthalene	29	2.3	9.8		mg/Kg	50	8/18/2021 2:01:10 PM	R80646
Acetone	ND	0.80	3.7		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromobenzene	ND	0.052	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromodichloromethane	ND	0.031	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromoform	ND	0.059	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromomethane	ND	0.41	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Butanone	ND	1.1	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Carbon disulfide	ND	0.10	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Carbon tetrachloride	ND	0.027	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chlorobenzene	ND	0.044	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chloroethane	ND	0.092	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chloroform	ND	0.035	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chloromethane	ND	0.086	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Chlorotoluene	ND	0.033	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.13	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
cis-1,2-DCE	ND	0.12	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
cis-1,3-Dichloropropene	ND	0.036	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dibromo-3-chloropropane	ND	0.11	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Dibromochloromethane	ND	0.039	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Dibromomethane	ND	0.057	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dichlorobenzene	ND	0.051	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,3-Dichlorobenzene	ND	0.046	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,4-Dichlorobenzene	ND	0.066	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Dichlorodifluoromethane	ND	0.095	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1-Dichloroethane	ND	0.071	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1-Dichloroethene	ND	0.053	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dichloropropane	ND	0.048	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,3-Dichloropropane	ND	0.054	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2,2-Dichloropropane	ND	0.035	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1-Dichloropropene	ND	0.030	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Hexachlorobutadiene	ND	0.17	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Hexanone	ND	0.11	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Isopropylbenzene	ND	0.045	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
4-Isopropyltoluene	0.074	0.063	0.25	J	mg/Kg	5	8/17/2021 11:39:30 PM	A80598
4-Methyl-2-pentanone	ND	0.29	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Methylene chloride	ND	0.18	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
n-Butylbenzene	ND	0.065	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
n-Propylbenzene	ND	0.040	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
sec-Butylbenzene	ND	0.20	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Styrene	ND	0.033	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
tert-Butylbenzene	ND	0.057	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,1,2-Tetrachloroethane	ND	0.036	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,2,2-Tetrachloroethane	ND	0.079	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Tetrachloroethene (PCE)	ND	0.067	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
trans-1,2-DCE	ND	0.047	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
trans-1,3-Dichloropropene	ND	0.057	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,3-Trichlorobenzene	ND	0.038	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,4-Trichlorobenzene	ND	0.085	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,1-Trichloroethane	ND	0.054	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,2-Trichloroethane	ND	0.061	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Trichloroethene (TCE)	ND	0.048	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Trichlorofluoromethane	ND	0.056	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,3-Trichloropropane	ND	0.10	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.047	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Xylenes, Total	0.64	0.13	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Surr: Dibromofluoromethane	95.8		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
Surr: Toluene-d8	104		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
Surr: 4-Bromofluorobenzene	94.8		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	190	6.8	25		mg/Kg	5	8/17/2021 2:15:30 AM	B80534
Surr: BFB	94.4	0	70-130		%Rec	5	8/17/2021 2:15:30 AM	B80534

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Qualifiers:

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D	Sample Diluted Due to Matrix
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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	3300	93	190		mg/Kg	20	8/19/2021 7:42:25 AM	61999
Motor Oil Range Organics (MRO)	3000	940	940		mg/Kg	20	8/19/2021 7:42:25 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 7:42:25 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.5	0.98	2.0	J	mg/Kg	20	8/27/2021 2:24:43 PM	62061
Barium	930	25	49		mg/Kg	500	8/26/2021 11:54:09 AM	62061
Cadmium	ND	0.98	2.0		mg/Kg	20	8/27/2021 2:24:43 PM	62061
Chromium	20	0.25	0.49		mg/Kg	5	8/30/2021 12:59:15 PM	62061
Lead	18	0.98	2.0		mg/Kg	20	8/28/2021 3:02:23 PM	62061
Selenium	2.9	1.1	2.0		mg/Kg	20	8/27/2021 2:24:43 PM	62061
Silver	ND	0.98	2.0		mg/Kg	20	8/27/2021 2:24:43 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.068	0.0027	0.033		mg/Kg	1	8/25/2021 11:09:20 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Acenaphthylene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Aniline	ND	17	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Anthracene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Azobenzene	ND	24	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benz(a)anthracene	ND	16	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(a)pyrene	ND	23	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(b)fluoranthene	ND	26	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(g,h,i)perylene	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(k)fluoranthene	ND	18	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzoic acid	ND	30	240	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzyl alcohol	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-chloroethoxy)methane	ND	19	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-chloroethyl)ether	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-chloroisopropyl)ether	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-ethylhexyl)phthalate	ND	52	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Bromophenyl phenyl ether	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Butyl benzyl phthalate	ND	15	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Carbazole	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Chloro-3-methylphenol	ND	20	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Chloronaphthalene	ND	23	61	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Chlorophenol	ND	26	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Chlorophenyl phenyl ether	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Di-n-butyl phthalate	ND	68	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Di-n-octyl phthalate	ND	31	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Dibenz(a,h)anthracene	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Dibenzofuran	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,2-Dichlorobenzene	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,3-Dichlorobenzene	ND	17	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,4-Dichlorobenzene	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
3,3´-Dichlorobenzidine	ND	36	61	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Diethyl phthalate	ND	79	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Dimethyl phthalate	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dichlorophenol	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dimethylphenol	ND	17	73	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4,6-Dinitro-2-methylphenol	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dinitrophenol	ND	12	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dinitrotoluene	ND	29	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Fluoranthene	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Fluorene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachlorobenzene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachlorobutadiene	ND	23	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachlorocyclopentadiene	ND	27	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachloroethane	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Indeno(1,2,3-cd)pyrene	ND	28	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Isophorone	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1-Methylnaphthalene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Methylnaphthalene	26	20	48	JD	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Methylphenol	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
3+4-Methylphenol	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
N-Nitrosodi-n-propylamine	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
N-Nitrosodimethylamine	ND	36	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
N-Nitrosodiphenylamine	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Naphthalene	ND	23	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Nitroaniline	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
3-Nitroaniline	ND	28	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Nitroaniline	ND	31	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Nitrobenzene	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Nitrophenol	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Nitrophenol	ND	20	61	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Phenanthrene	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Phenol	ND	19	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Pyrene	ND	18	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Pyridine	ND	39	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,2,4-Trichlorobenzene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4,5-Trichlorophenol	ND	15	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4,6-Trichlorophenol	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.7	0.047	0.12		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Toluene	0.041	0.031	0.24	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Ethylbenzene	0.40	0.059	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Methyl tert-butyl ether (MTBE)	0.50	0.14	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,4-Trimethylbenzene	1.9	0.034	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,3,5-Trimethylbenzene	0.68	0.054	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.055	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.095	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Naphthalene	4.7	0.090	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1-Methylnaphthalene	17	0.28	0.97		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Methylnaphthalene	32	2.2	9.7		mg/Kg	50	8/18/2021 2:29:57 PM	R80646
Acetone	ND	0.79	3.6		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromobenzene	ND	0.051	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromodichloromethane	ND	0.031	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromoform	ND	0.058	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromomethane	ND	0.40	0.73		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Butanone	ND	1.1	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Carbon disulfide	ND	0.10	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Carbon tetrachloride	ND	0.027	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chlorobenzene	ND	0.044	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chloroethane	ND	0.091	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chloroform	ND	0.034	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chloromethane	ND	0.085	0.73		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Chlorotoluene	ND	0.032	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.13	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
cis-1,2-DCE	ND	0.12	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
cis-1,3-Dichloropropene	ND	0.036	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.10	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Dibromochloromethane	ND	0.039	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Dibromomethane	ND	0.057	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dichlorobenzene	ND	0.050	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,3-Dichlorobenzene	ND	0.046	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,4-Dichlorobenzene	ND	0.065	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Dichlorodifluoromethane	ND	0.094	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1-Dichloroethane	ND	0.071	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1-Dichloroethene	ND	0.052	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dichloropropane	ND	0.047	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,3-Dichloropropane	ND	0.053	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2,2-Dichloropropane	ND	0.034	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1-Dichloropropene	ND	0.029	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Hexachlorobutadiene	ND	0.16	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Hexanone	ND	0.11	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Isopropylbenzene	ND	0.045	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
4-Isopropyltoluene	0.11	0.062	0.24	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
4-Methyl-2-pentanone	ND	0.28	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Methylene chloride	ND	0.18	0.73		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
n-Butylbenzene	0.085	0.065	0.73	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
n-Propylbenzene	0.094	0.039	0.24	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
sec-Butylbenzene	ND	0.20	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Styrene	ND	0.033	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
tert-Butylbenzene	ND	0.056	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.036	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.078	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Tetrachloroethene (PCE)	ND	0.066	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
trans-1,2-DCE	ND	0.047	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
trans-1,3-Dichloropropene	ND	0.057	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,3-Trichlorobenzene	ND	0.037	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,4-Trichlorobenzene	ND	0.084	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,1-Trichloroethane	ND	0.053	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,2-Trichloroethane	ND	0.061	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Trichloroethene (TCE)	ND	0.047	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Trichlorofluoromethane	ND	0.055	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,3-Trichloropropane	ND	0.10	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.046	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Xylenes, Total	1.8	0.13	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Surr: Dibromofluoromethane	97.6		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
Surr: 1,2-Dichloroethane-d4	98.5		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
Surr: Toluene-d8	102		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
Surr: 4-Bromofluorobenzene	94.2		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	230	6.7	24		mg/Kg	5	8/18/2021 12:36:38 AM	G80598
Surr: BFB	97.8	0	70-130		%Rec	5	8/18/2021 12:36:38 AM	G80598

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	280	24	48		mg/Kg	5	8/20/2021 5:29:32 PM	61999
Motor Oil Range Organics (MRO)	310	240	240		mg/Kg	5	8/20/2021 5:29:32 PM	61999
Surr: DNOP	113	0	70-130		%Rec	5	8/20/2021 5:29:32 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.97	0.098	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
Barium	490	24	49		mg/Kg	500	8/26/2021 12:07:48 PM	62061
Cadmium	ND	0.098	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
Chromium	19	0.24	0.49		mg/Kg	5	8/28/2021 3:05:50 PM	62061
Lead	12	0.49	0.98		mg/Kg	10	8/30/2021 2:29:31 PM	62061
Selenium	1.5	0.11	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
Silver	ND	0.098	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0084	0.0026	0.032	J	mg/Kg	1	8/25/2021 11:15:44 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Acenaphthylene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Anthracene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzoic acid	ND	1.2	10	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.2	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052

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S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Dimethyl phthalate	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Methylnaphthalene	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
N-Nitrosodi-n-propylamine	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.36	0.0077	0.020		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Toluene	ND	0.0052	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Ethylbenzene	0.36	0.0098	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Methyl tert-butyl ether (MTBE)	1.3	0.023	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,4-Trimethylbenzene	0.031	0.0057	0.040	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0090	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0092	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.016	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Naphthalene	0.10	0.015	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1-Methylnaphthalene	0.16	0.046	0.16	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Methylnaphthalene	0.27	0.037	0.16		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Acetone	ND	0.13	0.60		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromobenzene	ND	0.0085	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromodichloromethane	ND	0.0051	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromoform	ND	0.0097	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Butanone	ND	0.17	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Carbon disulfide	ND	0.017	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Carbon tetrachloride	ND	0.0045	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chlorobenzene	ND	0.0072	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chloroethane	ND	0.015	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chloroform	ND	0.0057	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Chlorotoluene	ND	0.0054	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
cis-1,2-DCE	ND	0.020	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
cis-1,3-Dichloropropene	ND	0.0060	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Dibromochloromethane	ND	0.0064	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Dibromomethane	ND	0.0094	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dichlorobenzene	ND	0.0084	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,3-Dichlorobenzene	ND	0.0076	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,4-Dichlorobenzene	ND	0.011	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Dichlorodifluoromethane	ND	0.016	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1-Dichloroethane	ND	0.012	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1-Dichloroethene	ND	0.0086	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dichloropropane	ND	0.0078	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,3-Dichloropropane	ND	0.0088	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2,2-Dichloropropane	ND	0.0057	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1-Dichloropropene	ND	0.0049	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Hexachlorobutadiene	ND	0.027	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Hexanone	ND	0.018	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Isopropylbenzene	0.037	0.0075	0.040	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
4-Isopropyltoluene	ND	0.010	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
4-Methyl-2-pentanone	ND	0.047	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
n-Butylbenzene	0.039	0.011	0.12	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
n-Propylbenzene	0.12	0.0065	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
sec-Butylbenzene	ND	0.033	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Styrene	ND	0.0055	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
tert-Butylbenzene	ND	0.0093	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0059	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
trans-1,2-DCE	ND	0.0078	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
trans-1,3-Dichloropropene	ND	0.0094	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0062	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,1-Trichloroethane	ND	0.0089	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,2-Trichloroethane	ND	0.010	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Trichloroethene (TCE)	ND	0.0079	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Trichlorofluoromethane	ND	0.0091	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,3-Trichloropropane	ND	0.017	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598

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Qualifiers:

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S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0077	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Xylenes, Total	ND	0.021	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
Surr: Toluene-d8	101		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
Surr: 4-Bromofluorobenzene	93.7		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	16	1.1	4.0		mg/Kg	1	8/18/2021 3:28:33 AM	G80598
Surr: BFB	94.2	0	70-130		%Rec	1	8/18/2021 3:28:33 AM	G80598

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PQL	Practical Quanitative Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.8	9.6		mg/Kg	1	8/17/2021 2:26:44 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 2:26:44 PM	62000
Surr: DNOP	107	0	70-130		%Rec	1	8/17/2021 2:26:44 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.85	0.50	1.0	J	mg/Kg	10	8/26/2021 4:08:15 PM	62062
Barium	350	25	50		mg/Kg	500	8/26/2021 12:21:26 PM	62062
Cadmium	ND	0.50	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
Chromium	19	0.50	1.0		mg/Kg	10	8/27/2021 4:33:38 PM	62062
Lead	12	0.50	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
Selenium	1.4	0.57	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
Silver	ND	0.50	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0063	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:17:52 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.087	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Acenaphthylene	ND	0.088	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Aniline	ND	0.067	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Anthracene	ND	0.088	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Azobenzene	ND	0.097	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benz(a)anthracene	ND	0.062	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(a)pyrene	ND	0.091	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(b)fluoranthene	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(g,h,i)perylene	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(k)fluoranthene	ND	0.073	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzoic acid	ND	0.12	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzyl alcohol	ND	0.080	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-chloroethoxy)methane	ND	0.074	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-chloroethyl)ether	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-ethylhexyl)phthalate	ND	0.21	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Bromophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Butyl benzyl phthalate	ND	0.059	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Carbazole	ND	0.085	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Chloro-3-methylphenol	ND	0.082	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Chloroaniline	ND	0.094	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Chloronaphthalene	ND	0.092	0.24		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Chlorophenyl phenyl ether	ND	0.082	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.086	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Di-n-butyl phthalate	ND	0.27	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Di-n-octyl phthalate	ND	0.12	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Dibenz(a,h)anthracene	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Dibenzofuran	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,2-Dichlorobenzene	ND	0.078	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,3-Dichlorobenzene	ND	0.069	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,4-Dichlorobenzene	ND	0.082	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
3,3´-Dichlorobenzidine	ND	0.15	0.24		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Diethyl phthalate	ND	0.32	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Dimethyl phthalate	ND	0.090	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dichlorophenol	ND	0.079	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dimethylphenol	ND	0.069	0.29		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.082	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dinitrophenol	ND	0.049	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dinitrotoluene	ND	0.12	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,6-Dinitrotoluene	ND	0.099	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Fluoranthene	ND	0.078	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Fluorene	ND	0.087	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachlorobenzene	ND	0.086	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachlorobutadiene	ND	0.091	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachloroethane	ND	0.086	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Isophorone	ND	0.079	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1-Methylnaphthalene	ND	0.089	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Methylnaphthalene	ND	0.080	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Methylphenol	ND	0.082	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
3+4-Methylphenol	ND	0.080	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
N-Nitrosodi-n-propylamine	ND	0.090	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
N-Nitrosodiphenylamine	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Naphthalene	ND	0.091	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Nitroaniline	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Nitroaniline	ND	0.12	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Nitrobenzene	ND	0.080	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Nitrophenol	ND	0.084	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Nitrophenol	ND	0.080	0.24		mg/Kg	1	8/23/2021 6:25:35 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.084	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Phenanthrene	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Phenol	ND	0.075	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Pyrene	ND	0.074	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Pyridine	ND	0.16	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,2,4-Trichlorobenzene	ND	0.089	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4,5-Trichlorophenol	ND	0.062	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4,6-Trichlorophenol	ND	0.084	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Surr: 2-Fluorophenol	44.2		20.3-74.1		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: Phenol-d5	52.7		23.1-92.7		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: 2,4,6-Tribromophenol	63.6		17.3-122		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: Nitrobenzene-d5	22.7		24.7-73.2	S	%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: 2-Fluorobiphenyl	38.5		21.5-90.1		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: 4-Terphenyl-d14	88.5		15-140		%Rec	1	8/23/2021 6:25:35 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.63	0.0050	0.013		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Toluene	ND	0.0034	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Ethylbenzene	0.20	0.0064	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Methyl tert-butyl ether (MTBE)	1.5	0.015	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,4-Trimethylbenzene	ND	0.0037	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0059	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0060	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.010	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Naphthalene	0.017	0.0097	0.052	J	mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1-Methylnaphthalene	ND	0.030	0.10		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Methylnaphthalene	ND	0.024	0.10		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Acetone	ND	0.085	0.39		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromobenzene	ND	0.0055	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromodichloromethane	ND	0.0033	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromoform	ND	0.0063	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromomethane	ND	0.043	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Butanone	ND	0.11	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Carbon disulfide	ND	0.011	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Carbon tetrachloride	ND	0.0029	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chlorobenzene	ND	0.0047	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chloroethane	ND	0.0098	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chloroform	ND	0.0037	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chloromethane	ND	0.0092	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Chlorotoluene	ND	0.0035	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB4 (5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
cis-1,2-DCE	ND	0.013	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
cis-1,3-Dichloropropene	ND	0.0039	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.011	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Dibromochloromethane	ND	0.0042	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Dibromomethane	ND	0.0061	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dichlorobenzene	ND	0.0054	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,3-Dichlorobenzene	ND	0.0049	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,4-Dichlorobenzene	ND	0.0070	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Dichlorodifluoromethane	ND	0.010	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1-Dichloroethane	ND	0.0076	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1-Dichloroethene	ND	0.0056	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dichloropropane	ND	0.0051	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,3-Dichloropropane	ND	0.0057	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2,2-Dichloropropane	ND	0.0037	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1-Dichloropropene	ND	0.0032	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Hexachlorobutadiene	ND	0.018	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Hexanone	ND	0.011	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Isopropylbenzene	0.016	0.0048	0.026	J	mg/Kg	1	8/18/2021 3:57:12 AM	A80598
4-Isopropyltoluene	ND	0.0067	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
4-Methyl-2-pentanone	ND	0.030	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Methylene chloride	ND	0.019	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
n-Butylbenzene	ND	0.0070	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
n-Propylbenzene	0.046	0.0042	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
sec-Butylbenzene	ND	0.022	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Styrene	ND	0.0036	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
tert-Butylbenzene	ND	0.0060	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0038	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.0085	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Tetrachloroethene (PCE)	ND	0.0072	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
trans-1,2-DCE	ND	0.0050	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
trans-1,3-Dichloropropene	ND	0.0061	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0040	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,4-Trichlorobenzene	ND	0.0091	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,1-Trichloroethane	ND	0.0058	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,2-Trichloroethane	ND	0.0065	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Trichloroethene (TCE)	ND	0.0051	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Trichlorofluoromethane	ND	0.0059	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,3-Trichloropropane	ND	0.011	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0050	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Xylenes, Total	ND	0.014	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
Surr: Toluene-d8	105		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
Surr: 4-Bromofluorobenzene	86.9		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	9.0	0.73	2.6		mg/Kg	1	8/17/2021 3:41:17 AM	B80534
Surr: BFB	97.0	0	70-130		%Rec	1	8/17/2021 3:41:17 AM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.6	9.3		mg/Kg	1	8/17/2021 2:56:32 PM	62000
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/17/2021 2:56:32 PM	62000
Surr: DNOP	103	0	70-130		%Rec	1	8/17/2021 2:56:32 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.97	0.97	1.9	J	mg/Kg	20	8/26/2021 4:12:48 PM	62062
Barium	300	9.7	19		mg/Kg	200	8/26/2021 12:44:13 PM	62062
Cadmium	ND	0.97	1.9		mg/Kg	20	8/26/2021 4:12:48 PM	62062
Chromium	21	0.97	1.9		mg/Kg	20	8/27/2021 4:38:12 PM	62062
Lead	14	0.97	1.9		mg/Kg	20	8/26/2021 4:12:48 PM	62062
Selenium	1.7	1.1	1.9	J	mg/Kg	20	8/26/2021 4:12:48 PM	62062
Silver	ND	0.97	1.9		mg/Kg	20	8/26/2021 4:12:48 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0068	0.0025	0.031	J	mg/Kg	1	8/25/2021 11:20:00 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.089	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Acenaphthylene	ND	0.090	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Aniline	ND	0.069	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Anthracene	ND	0.090	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Azobenzene	ND	0.099	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benz(a)anthracene	ND	0.064	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(a)pyrene	ND	0.094	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(b)fluoranthene	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(k)fluoranthene	ND	0.075	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzoic acid	ND	0.12	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzyl alcohol	ND	0.081	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-chloroethoxy)methane	ND	0.076	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-ethylhexyl)phthalate	ND	0.21	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Butyl benzyl phthalate	ND	0.060	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Carbazole	ND	0.087	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Chloro-3-methylphenol	ND	0.084	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Chloroaniline	ND	0.097	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Chloronaphthalene	ND	0.094	0.25		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Chlorophenyl phenyl ether	ND	0.084	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.088	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Di-n-butyl phthalate	ND	0.28	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Di-n-octyl phthalate	ND	0.13	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,2-Dichlorobenzene	ND	0.080	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,3-Dichlorobenzene	ND	0.071	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,4-Dichlorobenzene	ND	0.084	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Diethyl phthalate	ND	0.32	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Dimethyl phthalate	ND	0.092	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dichlorophenol	ND	0.081	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dimethylphenol	ND	0.071	0.30		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.084	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dinitrophenol	ND	0.050	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,6-Dinitrotoluene	ND	0.10	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Fluoranthene	ND	0.080	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Fluorene	ND	0.089	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachlorobenzene	ND	0.088	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachlorobutadiene	ND	0.093	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachloroethane	ND	0.088	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Isophorone	ND	0.081	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1-Methylnaphthalene	ND	0.091	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Methylnaphthalene	ND	0.082	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Methylphenol	ND	0.084	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
3+4-Methylphenol	ND	0.082	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
N-Nitrosodi-n-propylamine	ND	0.092	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Naphthalene	ND	0.094	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
3-Nitroaniline	ND	0.12	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Nitrobenzene	ND	0.081	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Nitrophenol	ND	0.086	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Nitrophenol	ND	0.082	0.25		mg/Kg	1	8/25/2021 6:47:55 PM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.086	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Phenanthrene	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Phenol	ND	0.077	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Pyrene	ND	0.075	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Pyridine	ND	0.16	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,2,4-Trichlorobenzene	ND	0.091	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4,6-Trichlorophenol	ND	0.086	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Surr: 2-Fluorophenol	41.9		20.3-74.1		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: Phenol-d5	49.6		23.1-92.7		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: 2,4,6-Tribromophenol	68.2		17.3-122		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: Nitrobenzene-d5	32.9		24.7-73.2		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: 2-Fluorobiphenyl	36.9		21.5-90.1		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: 4-Terphenyl-d14	98.1		15-140		%Rec	1	8/25/2021 6:47:55 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.50	0.0070	0.018		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Toluene	ND	0.0047	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Ethylbenzene	0.11	0.0089	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Methyl tert-butyl ether (MTBE)	2.3	0.021	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,4-Trimethylbenzene	0.020	0.0052	0.037	J	mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0082	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0083	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.014	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Naphthalene	ND	0.014	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1-Methylnaphthalene	ND	0.042	0.15		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Methylnaphthalene	ND	0.034	0.15		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Acetone	ND	0.12	0.55		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromobenzene	ND	0.0078	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromodichloromethane	ND	0.0047	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromoform	ND	0.0088	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromomethane	ND	0.061	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Carbon tetrachloride	ND	0.0041	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chlorobenzene	ND	0.0066	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chloroethane	ND	0.014	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chloroform	ND	0.0052	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Chlorotoluene	ND	0.0049	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.019	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
cis-1,2-DCE	ND	0.018	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
cis-1,3-Dichloropropene	ND	0.0054	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.016	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Dibromochloromethane	ND	0.0059	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Dibromomethane	ND	0.0086	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dichlorobenzene	ND	0.0076	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,3-Dichlorobenzene	ND	0.0069	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,4-Dichlorobenzene	ND	0.0098	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1-Dichloroethene	ND	0.0078	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dichloropropane	ND	0.0071	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,3-Dichloropropane	ND	0.0080	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2,2-Dichloropropane	ND	0.0052	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1-Dichloropropene	ND	0.0044	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Hexachlorobutadiene	ND	0.025	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Isopropylbenzene	ND	0.0068	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
4-Isopropyltoluene	ND	0.0094	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
4-Methyl-2-pentanone	ND	0.043	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
n-Butylbenzene	ND	0.0098	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
n-Propylbenzene	0.016	0.0059	0.037	J	mg/Kg	1	8/18/2021 4:25:51 AM	A80598
sec-Butylbenzene	ND	0.030	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Styrene	ND	0.0050	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
tert-Butylbenzene	ND	0.0085	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0054	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
trans-1,2-DCE	ND	0.0071	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
trans-1,3-Dichloropropene	ND	0.0086	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0057	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,1-Trichloroethane	ND	0.0081	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,2-Trichloroethane	ND	0.0092	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Trichloroethene (TCE)	ND	0.0072	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Trichlorofluoromethane	ND	0.0083	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,3-Trichloropropane	ND	0.015	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598

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Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0070	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Xylenes, Total	ND	0.019	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
Surr: 1,2-Dichloroethane-d4	95.7		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
Surr: Toluene-d8	102		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
Surr: 4-Bromofluorobenzene	98.1		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	2.9	1.0	3.7	J	mg/Kg	1	8/17/2021 4:09:47 AM	B80534
Surr: BFB	94.8	0	70-130		%Rec	1	8/17/2021 4:09:47 AM	B80534

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H	Holding times for preparation or analysis exceeded
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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.8	9.8		mg/Kg	1	8/17/2021 3:06:26 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 3:06:26 PM	62000
Surr: DNOP	107	0	70-130		%Rec	1	8/17/2021 3:06:26 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.75	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Barium	390	4.9	9.8		mg/Kg	100	8/26/2021 4:17:21 PM	62062
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Chromium	18	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Lead	13	0.49	0.98		mg/Kg	10	8/26/2021 4:21:53 PM	62062
Selenium	0.78	0.28	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0065	0.0028	0.036	J	mg/Kg	1	8/25/2021 11:22:08 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.083	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Acenaphthylene	ND	0.084	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Aniline	ND	0.064	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Anthracene	ND	0.084	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Azobenzene	ND	0.093	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benz(a)anthracene	ND	0.060	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(a)pyrene	ND	0.088	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(b)fluoranthene	ND	0.099	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(g,h,i)perylene	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(k)fluoranthene	ND	0.070	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzoic acid	ND	0.12	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzyl alcohol	ND	0.076	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-chloroethoxy)methane	ND	0.071	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-chloroethyl)ether	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-ethylhexyl)phthalate	ND	0.20	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Bromophenyl phenyl ether	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Butyl benzyl phthalate	ND	0.057	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Carbazole	ND	0.082	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Chloro-3-methylphenol	ND	0.079	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Chloroaniline	ND	0.091	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Chloronaphthalene	ND	0.088	0.23		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Chlorophenyl phenyl ether	ND	0.079	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.082	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Di-n-butyl phthalate	0.27	0.26	0.37	J	mg/Kg	1	8/23/2021 10:03:22 PM	62017
Di-n-octyl phthalate	ND	0.12	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Dibenz(a,h)anthracene	ND	0.098	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Dibenzofuran	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,2-Dichlorobenzene	ND	0.075	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,3-Dichlorobenzene	ND	0.066	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,4-Dichlorobenzene	ND	0.079	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
3,3´-Dichlorobenzidine	ND	0.14	0.23		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Diethyl phthalate	ND	0.30	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Dimethyl phthalate	ND	0.086	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dichlorophenol	ND	0.076	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dimethylphenol	ND	0.066	0.28		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.078	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dinitrophenol	ND	0.047	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,6-Dinitrotoluene	ND	0.095	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Fluoranthene	ND	0.075	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Fluorene	ND	0.083	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachlorobenzene	ND	0.083	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachlorobutadiene	ND	0.087	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachloroethane	ND	0.082	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Isophorone	ND	0.076	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1-Methylnaphthalene	ND	0.086	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Methylnaphthalene	ND	0.077	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Methylphenol	ND	0.078	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
3+4-Methylphenol	ND	0.077	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
N-Nitrosodi-n-propylamine	ND	0.086	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
N-Nitrosodiphenylamine	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Naphthalene	ND	0.088	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Nitroaniline	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Nitrobenzene	ND	0.076	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Nitrophenol	ND	0.080	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Nitrophenol	ND	0.077	0.23		mg/Kg	1	8/23/2021 10:03:22 PM	62017

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PQL	Practical Quanitative Limit
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B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.080	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Phenanthrene	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Phenol	ND	0.072	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Pyrene	ND	0.071	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Pyridine	ND	0.15	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,2,4-Trichlorobenzene	ND	0.085	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4,5-Trichlorophenol	ND	0.059	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4,6-Trichlorophenol	ND	0.080	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Surr: 2-Fluorophenol	54.3		20.3-74.1		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: Phenol-d5	65.4		23.1-92.7		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: 2,4,6-Tribromophenol	75.9		17.3-122		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: Nitrobenzene-d5	45.9		24.7-73.2		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: 2-Fluorobiphenyl	48.3		21.5-90.1		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: 4-Terphenyl-d14	97.9		15-140		%Rec	1	8/23/2021 10:03:22 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.43	0.0078	0.020		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Toluene	ND	0.0052	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Ethylbenzene	0.16	0.0098	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Methyl tert-butyl ether (MTBE)	2.1	0.023	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,4-Trimethylbenzene	0.040	0.0057	0.040	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0091	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0092	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.016	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Naphthalene	0.030	0.015	0.081	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1-Methylnaphthalene	ND	0.046	0.16		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Methylnaphthalene	ND	0.037	0.16		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Acetone	ND	0.13	0.61		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromobenzene	ND	0.0086	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromodichloromethane	ND	0.0051	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromoform	ND	0.0097	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Butanone	ND	0.18	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Carbon disulfide	ND	0.017	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Carbon tetrachloride	ND	0.0045	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chlorobenzene	ND	0.0073	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chloroethane	ND	0.015	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chloroform	ND	0.0057	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Chlorotoluene	ND	0.0054	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
cis-1,2-DCE	ND	0.020	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
cis-1,3-Dichloropropene	ND	0.0060	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Dibromochloromethane	ND	0.0065	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Dibromomethane	ND	0.0094	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dichlorobenzene	ND	0.0084	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,3-Dichlorobenzene	ND	0.0076	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,4-Dichlorobenzene	ND	0.011	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Dichlorodifluoromethane	ND	0.016	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1-Dichloroethane	ND	0.012	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1-Dichloroethene	ND	0.0087	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dichloropropane	ND	0.0079	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,3-Dichloropropane	ND	0.0089	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2,2-Dichloropropane	ND	0.0057	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1-Dichloropropene	ND	0.0049	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Hexachlorobutadiene	ND	0.027	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Hexanone	ND	0.018	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Isopropylbenzene	0.012	0.0075	0.040	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
4-Isopropyltoluene	ND	0.010	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
4-Methyl-2-pentanone	ND	0.047	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
n-Butylbenzene	0.012	0.011	0.12	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
n-Propylbenzene	0.043	0.0065	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
sec-Butylbenzene	ND	0.033	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Styrene	ND	0.0055	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
tert-Butylbenzene	ND	0.0093	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0059	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
trans-1,2-DCE	ND	0.0078	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
trans-1,3-Dichloropropene	ND	0.0095	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0062	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,1-Trichloroethane	ND	0.0089	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,2-Trichloroethane	ND	0.010	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Trichloroethene (TCE)	ND	0.0079	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Trichlorofluoromethane	ND	0.0092	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,3-Trichloropropane	ND	0.017	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0077	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Xylenes, Total	ND	0.021	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
Surr: Toluene-d8	102		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
Surr: 4-Bromofluorobenzene	88.4		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	5.4	1.1	4.0		mg/Kg	1	8/18/2021 4:54:37 AM	G80598
Surr: BFB	92.5	0	70-130		%Rec	1	8/18/2021 4:54:37 AM	G80598

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	120	9.7	20		mg/Kg	2	8/18/2021 9:24:06 PM	62000
Motor Oil Range Organics (MRO)	320	98	98		mg/Kg	2	8/18/2021 9:24:06 PM	62000
Surr: DNOP	120	0	70-130		%Rec	2	8/18/2021 9:24:06 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Barium	650	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Cadmium	ND	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Chromium	43	0.97	1.9		mg/Kg	20	8/27/2021 4:47:20 PM	62062
Lead	40	0.97	1.9		mg/Kg	20	8/26/2021 4:44:41 PM	62062
Selenium	ND	11	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Silver	ND	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.080	0.0026	0.033		mg/Kg	1	8/25/2021 11:24:17 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Di-n-butyl phthalate	ND	2.8	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dinitrophenol	ND	0.50	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Isophorone	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0089	0.023		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Toluene	ND	0.0060	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Ethylbenzene	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Methyl tert-butyl ether (MTBE)	ND	0.026	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,4-Trimethylbenzene	ND	0.0065	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,3,5-Trimethylbenzene	ND	0.010	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.018	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Naphthalene	ND	0.017	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1-Methylnaphthalene	ND	0.053	0.19		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Methylnaphthalene	ND	0.043	0.19		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Acetone	ND	0.15	0.70		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromobenzene	ND	0.0098	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromodichloromethane	ND	0.0059	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromoform	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromomethane	ND	0.077	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Butanone	ND	0.20	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Carbon disulfide	ND	0.019	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Carbon tetrachloride	ND	0.0052	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chlorobenzene	ND	0.0083	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chloroethane	ND	0.017	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chloroform	ND	0.0066	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chloromethane	ND	0.016	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Chlorotoluene	ND	0.0062	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB5 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.024	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
cis-1,2-DCE	ND	0.023	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
cis-1,3-Dichloropropene	ND	0.0069	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.020	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Dibromochloromethane	ND	0.0074	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Dibromomethane	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dichlorobenzene	ND	0.0096	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,3-Dichlorobenzene	ND	0.0088	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,4-Dichlorobenzene	ND	0.012	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Dichlorodifluoromethane	ND	0.018	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1-Dichloroethane	ND	0.013	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1-Dichloroethene	ND	0.0099	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dichloropropane	ND	0.0090	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,3-Dichloropropane	ND	0.010	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2,2-Dichloropropane	ND	0.0066	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1-Dichloropropene	ND	0.0056	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Hexachlorobutadiene	ND	0.032	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Hexanone	ND	0.020	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Isopropylbenzene	ND	0.0086	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
4-Isopropyltoluene	ND	0.012	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
4-Methyl-2-pentanone	ND	0.054	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Methylene chloride	ND	0.034	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
n-Butylbenzene	ND	0.012	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
n-Propylbenzene	ND	0.0075	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
sec-Butylbenzene	ND	0.038	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Styrene	ND	0.0063	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
tert-Butylbenzene	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0068	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.015	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Tetrachloroethene (PCE)	ND	0.013	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
trans-1,2-DCE	ND	0.0090	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
trans-1,3-Dichloropropene	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0072	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,4-Trichlorobenzene	ND	0.016	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,1-Trichloroethane	ND	0.010	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,2-Trichloroethane	ND	0.012	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Trichloroethene (TCE)	ND	0.0091	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Trichlorofluoromethane	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,3-Trichloropropane	ND	0.020	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0088	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Xylenes, Total	ND	0.024	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
Surr: 1,2-Dichloroethane-d4	99.7		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
Surr: Toluene-d8	105		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
Surr: 4-Bromofluorobenzene	89.5		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.3	4.6		mg/Kg	1	8/17/2021 5:06:55 AM	C80534
Surr: BFB	97.2	0	70-130		%Rec	1	8/17/2021 5:06:55 AM	C80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	110	9.8	20		mg/Kg	2	8/18/2021 8:36:11 PM	62000
Motor Oil Range Organics (MRO)	430	99	99		mg/Kg	2	8/18/2021 8:36:11 PM	62000
Surr: DNOP	117	0	70-130		%Rec	2	8/18/2021 8:36:11 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.6	1.0	2.0	J	mg/Kg	20	8/26/2021 4:53:51 PM	62062
Barium	480	10	20		mg/Kg	200	8/26/2021 4:49:19 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 4:53:51 PM	62062
Chromium	12	1.0	2.0		mg/Kg	20	8/27/2021 5:05:50 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/26/2021 4:53:51 PM	62062
Selenium	1.5	1.1	2.0	J	mg/Kg	20	8/26/2021 4:53:51 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 4:53:51 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.14	0.012	0.15	J	mg/Kg	5	8/25/2021 1:10:33 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Acenaphthylene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Aniline	ND	0.65	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Anthracene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Azobenzene	ND	0.93	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benz(a)anthracene	ND	0.60	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(a)pyrene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(b)fluoranthene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(g,h,i)perylene	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(k)fluoranthene	ND	0.70	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzoic acid	ND	1.2	9.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzyl alcohol	ND	0.76	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-chloroethoxy)methane	ND	0.71	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-chloroethyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.0	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Bromophenyl phenyl ether	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Carbazole	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Chloro-3-methylphenol	ND	0.79	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Chloroaniline	ND	0.91	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Chloronaphthalene	ND	0.88	2.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Chlorophenyl phenyl ether	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017

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H	Holding times for preparation or analysis exceeded
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PQL	Practical Quanitative Limit
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Di-n-butyl phthalate	ND	2.6	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Di-n-octyl phthalate	ND	1.2	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Dibenz(a,h)anthracene	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Dibenzofuran	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,2-Dichlorobenzene	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,3-Dichlorobenzene	ND	0.66	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,4-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
3,3´-Dichlorobenzidine	ND	1.4	2.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Diethyl phthalate	ND	3.0	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Dimethyl phthalate	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dichlorophenol	ND	0.76	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dimethylphenol	ND	0.66	2.8	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.79	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dinitrophenol	ND	0.47	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dinitrotoluene	ND	1.1	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,6-Dinitrotoluene	ND	0.95	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Fluoranthene	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Fluorene	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachlorobutadiene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachloroethane	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Isophorone	ND	0.76	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1-Methylnaphthalene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Methylnaphthalene	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
3+4-Methylphenol	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
N-Nitrosodi-n-propylamine	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
N-Nitrosodiphenylamine	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Naphthalene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Nitroaniline	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Nitroaniline	ND	1.2	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Nitrobenzene	ND	0.76	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Nitrophenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Nitrophenol	ND	0.77	2.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.80	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Phenanthrene	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Phenol	ND	0.72	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Pyrene	ND	0.71	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Pyridine	ND	1.5	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,2,4-Trichlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4,5-Trichlorophenol	ND	0.59	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4,6-Trichlorophenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	7.5	0.029	0.074		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Toluene	0.50	0.019	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Ethylbenzene	0.80	0.036	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Methyl tert-butyl ether (MTBE)	0.64	0.084	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,4-Trimethylbenzene	0.085	0.021	0.15	J	mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,3,5-Trimethylbenzene	ND	0.033	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.034	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.058	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Naphthalene	ND	0.055	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1-Methylnaphthalene	ND	0.17	0.59		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Methylnaphthalene	ND	0.14	0.59		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Acetone	ND	0.48	2.2		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromobenzene	ND	0.031	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromodichloromethane	ND	0.019	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromoform	ND	0.036	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromomethane	ND	0.25	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Butanone	ND	0.64	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Carbon disulfide	ND	0.061	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Carbon tetrachloride	ND	0.017	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chlorobenzene	ND	0.027	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chloroethane	ND	0.055	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chloroform	ND	0.021	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chloromethane	ND	0.052	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Chlorotoluene	ND	0.020	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.078	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
cis-1,2-DCE	ND	0.074	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
cis-1,3-Dichloropropene	ND	0.022	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.064	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Dibromochloromethane	ND	0.024	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Dibromomethane	ND	0.035	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dichlorobenzene	ND	0.031	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,3-Dichlorobenzene	ND	0.028	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,4-Dichlorobenzene	ND	0.040	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Dichlorodifluoromethane	ND	0.057	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1-Dichloroethane	ND	0.043	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1-Dichloroethene	ND	0.032	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dichloropropane	ND	0.029	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,3-Dichloropropane	ND	0.033	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2,2-Dichloropropane	ND	0.021	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1-Dichloropropene	ND	0.018	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Hexachlorobutadiene	ND	0.10	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Hexanone	ND	0.065	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Isopropylbenzene	ND	0.028	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
4-Isopropyltoluene	ND	0.038	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
4-Methyl-2-pentanone	ND	0.17	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Methylene chloride	ND	0.11	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
n-Butylbenzene	ND	0.040	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
n-Propylbenzene	ND	0.024	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
sec-Butylbenzene	ND	0.12	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Styrene	ND	0.020	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
tert-Butylbenzene	ND	0.034	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.022	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.048	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Tetrachloroethene (PCE)	ND	0.041	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
trans-1,2-DCE	ND	0.029	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
trans-1,3-Dichloropropene	ND	0.035	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,3-Trichlorobenzene	ND	0.023	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,4-Trichlorobenzene	ND	0.052	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,1-Trichloroethane	ND	0.033	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,2-Trichloroethane	ND	0.037	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Trichloroethene (TCE)	ND	0.029	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Trichlorofluoromethane	ND	0.034	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,3-Trichloropropane	ND	0.062	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598

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Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

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Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.028	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Xylenes, Total	2.2	0.078	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Surr: Dibromofluoromethane	108		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
Surr: Toluene-d8	104		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
Surr: 4-Bromofluorobenzene	98.3		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	40	4.1	15		mg/Kg	5	8/17/2021 6:32:38 AM	C80534
Surr: BFB	99.0	0	70-130		%Rec	5	8/17/2021 6:32:38 AM	C80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB5 (4')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	31	4.9	9.8		mg/Kg	1	8/18/2021 2:17:53 PM	62000
Motor Oil Range Organics (MRO)	91	49	49		mg/Kg	1	8/18/2021 2:17:53 PM	62000
Surr: DNOP	121	0	70-130		%Rec	1	8/18/2021 2:17:53 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
Barium	260	9.9	20		mg/Kg	200	8/26/2021 4:58:24 PM	62062
Cadmium	ND	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
Chromium	14	0.99	2.0		mg/Kg	20	8/27/2021 5:10:24 PM	62062
Lead	14	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
Selenium	1.6	1.1	2.0	J	mg/Kg	20	8/26/2021 5:02:57 PM	62062
Silver	ND	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0087	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:41:28 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Di-n-butyl phthalate	ND	2.8	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dinitrophenol	ND	0.50	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Isophorone	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017

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D	Sample Diluted Due to Matrix
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PQL	Practical Quanitative Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	14	0.044	0.11		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Toluene	1.3	0.029	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Ethylbenzene	1.3	0.055	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Methyl tert-butyl ether (MTBE)	0.79	0.13	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,4-Trimethylbenzene	0.23	0.032	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,3,5-Trimethylbenzene	0.056	0.051	0.23	J	mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.052	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.089	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Naphthalene	ND	0.085	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1-Methylnaphthalene	ND	0.26	0.91		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Methylnaphthalene	ND	0.21	0.91		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Acetone	ND	0.74	3.4		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromobenzene	ND	0.048	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromodichloromethane	ND	0.029	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromoform	ND	0.055	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromomethane	ND	0.38	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Butanone	ND	0.99	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Carbon disulfide	ND	0.094	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Carbon tetrachloride	ND	0.025	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chlorobenzene	ND	0.041	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chloroethane	ND	0.085	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chloroform	ND	0.032	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chloromethane	ND	0.080	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Chlorotoluene	ND	0.030	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.12	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
cis-1,2-DCE	ND	0.11	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
cis-1,3-Dichloropropene	ND	0.034	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.098	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Dibromochloromethane	ND	0.036	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Dibromomethane	ND	0.053	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dichlorobenzene	ND	0.047	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,3-Dichlorobenzene	ND	0.043	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,4-Dichlorobenzene	ND	0.061	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Dichlorodifluoromethane	ND	0.088	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1-Dichloroethane	ND	0.066	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1-Dichloroethene	ND	0.049	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dichloropropane	ND	0.044	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,3-Dichloropropane	ND	0.050	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2,2-Dichloropropane	ND	0.032	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1-Dichloropropene	ND	0.027	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Hexachlorobutadiene	ND	0.15	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Hexanone	ND	0.099	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Isopropylbenzene	ND	0.042	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
4-Isopropyltoluene	ND	0.059	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
4-Methyl-2-pentanone	ND	0.27	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Methylene chloride	ND	0.16	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
n-Butylbenzene	ND	0.061	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
n-Propylbenzene	0.047	0.037	0.23	J	mg/Kg	5	8/18/2021 6:49:00 AM	A80598
sec-Butylbenzene	ND	0.19	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Styrene	ND	0.031	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
tert-Butylbenzene	ND	0.053	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.033	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.074	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Tetrachloroethene (PCE)	ND	0.062	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
trans-1,2-DCE	ND	0.044	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
trans-1,3-Dichloropropene	ND	0.053	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,3-Trichlorobenzene	ND	0.035	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,4-Trichlorobenzene	ND	0.079	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,1-Trichloroethane	ND	0.050	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,2-Trichloroethane	ND	0.057	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Trichloroethene (TCE)	ND	0.045	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Trichlorofluoromethane	ND	0.052	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,3-Trichloropropane	ND	0.096	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.043	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Xylenes, Total	4.8	0.12	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Surr: Dibromofluoromethane	101		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
Surr: Toluene-d8	103		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
Surr: 4-Bromofluorobenzene	91.8		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	93	6.3	23		mg/Kg	5	8/18/2021 6:49:00 AM	G80598
Surr: BFB	93.6	0	70-130		%Rec	5	8/18/2021 6:49:00 AM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1200	230	470		mg/Kg	50	8/17/2021 3:45:53 PM	62000
Motor Oil Range Organics (MRO)	3600	2400	2400		mg/Kg	50	8/17/2021 3:45:53 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	50	8/17/2021 3:45:53 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.5	1.0	2.1	J	mg/Kg	20	8/26/2021 5:12:02 PM	62062
Barium	780	10	21		mg/Kg	200	8/26/2021 5:07:29 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:12:02 PM	62062
Chromium	13	1.0	2.1		mg/Kg	20	8/27/2021 5:14:57 PM	62062
Lead	11	1.0	2.1		mg/Kg	20	8/26/2021 5:12:02 PM	62062
Selenium	1.4	1.2	2.1	J	mg/Kg	20	8/26/2021 5:12:02 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:12:02 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.016	0.0026	0.032	J	mg/Kg	1	8/25/2021 11:35:01 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Acenaphthylene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Aniline	ND	3.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Anthracene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Azobenzene	ND	4.9	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benz(a)anthracene	ND	3.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(a)pyrene	ND	4.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(b)fluoranthene	ND	5.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(g,h,i)perylene	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(k)fluoranthene	ND	3.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzoic acid	ND	6.1	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzyl alcohol	ND	4.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-chloroethoxy)methane	ND	3.8	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-chloroethyl)ether	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-chloroisopropyl)ether	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-ethylhexyl)phthalate	ND	11	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Bromophenyl phenyl ether	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Butyl benzyl phthalate	ND	3.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Carbazole	ND	4.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Chloro-3-methylphenol	ND	4.1	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Chloroaniline	ND	4.8	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Chloronaphthalene	ND	4.7	12	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Chlorophenol	ND	5.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Chlorophenyl phenyl ether	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	4.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Di-n-butyl phthalate	ND	14	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Di-n-octyl phthalate	ND	6.3	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Dibenz(a,h)anthracene	ND	5.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Dibenzofuran	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,2-Dichlorobenzene	ND	4.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,3-Dichlorobenzene	ND	3.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,4-Dichlorobenzene	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
3,3´-Dichlorobenzidine	ND	7.4	12	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Diethyl phthalate	ND	16	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Dimethyl phthalate	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dichlorophenol	ND	4.0	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dimethylphenol	ND	3.5	15	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4,6-Dinitro-2-methylphenol	ND	4.1	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dinitrophenol	ND	2.5	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dinitrotoluene	ND	6.0	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,6-Dinitrotoluene	ND	5.0	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Fluoranthene	ND	4.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Fluorene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachlorobenzene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachlorobutadiene	ND	4.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachlorocyclopentadiene	ND	5.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachloroethane	ND	4.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Indeno(1,2,3-cd)pyrene	ND	5.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Isophorone	ND	4.0	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1-Methylnaphthalene	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Methylnaphthalene	ND	4.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Methylphenol	ND	4.1	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
3+4-Methylphenol	ND	4.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
N-Nitrosodi-n-propylamine	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
N-Nitrosodimethylamine	ND	7.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
N-Nitrosodiphenylamine	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Naphthalene	ND	4.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Nitroaniline	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
3-Nitroaniline	ND	5.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Nitroaniline	ND	6.3	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Nitrobenzene	ND	4.0	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Nitrophenol	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Nitrophenol	ND	4.0	12	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	4.2	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Phenanthrene	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Phenol	ND	3.8	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Pyrene	ND	3.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Pyridine	ND	7.9	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,2,4-Trichlorobenzene	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4,5-Trichlorophenol	ND	3.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4,6-Trichlorophenol	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.81	0.0061	0.016		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Toluene	0.066	0.0041	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Ethylbenzene	0.88	0.0078	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Methyl tert-butyl ether (MTBE)	0.35	0.018	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,4-Trimethylbenzene	1.3	0.0045	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,3,5-Trimethylbenzene	0.33	0.0071	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0073	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.013	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Naphthalene	0.080	0.012	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1-Methylnaphthalene	ND	0.037	0.13		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Methylnaphthalene	0.046	0.029	0.13	J	mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Acetone	ND	0.10	0.48		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromobenzene	ND	0.0068	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromodichloromethane	ND	0.0041	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromoform	ND	0.0077	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromomethane	ND	0.053	0.096		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Butanone	ND	0.14	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Carbon disulfide	ND	0.013	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Carbon tetrachloride	ND	0.0035	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chlorobenzene	ND	0.0057	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chloroethane	ND	0.012	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chloroform	ND	0.0045	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chloromethane	ND	0.011	0.096		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Chlorotoluene	ND	0.0043	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB5 (5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.017	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
cis-1,2-DCE	ND	0.016	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
cis-1,3-Dichloropropene	ND	0.0047	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.014	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Dibromochloromethane	ND	0.0051	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Dibromomethane	ND	0.0074	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dichlorobenzene	ND	0.0066	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,3-Dichlorobenzene	ND	0.0060	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,4-Dichlorobenzene	ND	0.0085	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Dichlorodifluoromethane	ND	0.012	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1-Dichloroethane	ND	0.0093	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1-Dichloroethene	ND	0.0068	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dichloropropane	ND	0.0062	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,3-Dichloropropane	ND	0.0070	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2,2-Dichloropropane	ND	0.0045	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1-Dichloropropene	ND	0.0038	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Hexachlorobutadiene	ND	0.022	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Hexanone	ND	0.014	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Isopropylbenzene	0.049	0.0059	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
4-Isopropyltoluene	ND	0.0082	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
4-Methyl-2-pentanone	ND	0.037	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Methylene chloride	ND	0.023	0.096		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
n-Butylbenzene	0.034	0.0085	0.096	J	mg/Kg	1	8/18/2021 7:46:08 AM	A80598
n-Propylbenzene	0.25	0.0051	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
sec-Butylbenzene	ND	0.026	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Styrene	ND	0.0043	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
tert-Butylbenzene	ND	0.0074	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0047	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.010	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Tetrachloroethene (PCE)	ND	0.0087	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
trans-1,2-DCE	ND	0.0062	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
trans-1,3-Dichloropropene	ND	0.0075	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0049	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,4-Trichlorobenzene	ND	0.011	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,1-Trichloroethane	ND	0.0070	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,2-Trichloroethane	ND	0.0080	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Trichloroethene (TCE)	ND	0.0062	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Trichlorofluoromethane	ND	0.0072	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,3-Trichloropropane	ND	0.013	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0061	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Xylenes, Total	2.4	0.017	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Surr: Dibromofluoromethane	96.8		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
Surr: Toluene-d8	101		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
Surr: 4-Bromofluorobenzene	91.0		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	54	0.89	3.2		mg/Kg	1	8/17/2021 8:27:06 AM	C80534
Surr: BFB	96.7	0	70-130		%Rec	1	8/17/2021 8:27:06 AM	C80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	9.5	4.9	9.8	J	mg/Kg	1	8/17/2021 3:55:44 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 3:55:44 PM	62000
Surr: DNOP	111	0	70-130		%Rec	1	8/17/2021 3:55:44 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
Barium	280	9.8	20		mg/Kg	200	8/26/2021 5:16:34 PM	62062
Cadmium	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
Chromium	22	0.98	2.0		mg/Kg	20	8/27/2021 5:19:31 PM	62062
Lead	15	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
Selenium	1.7	1.1	2.0	J	mg/Kg	20	8/26/2021 5:21:07 PM	62062
Silver	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0069	0.0028	0.035	J	mg/Kg	1	8/25/2021 11:43:39 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzoic acid	ND	1.2	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Chloronaphthalene	ND	0.93	2.5	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB5 (7.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	2.3	0.031	0.081		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Toluene	1.3	0.021	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Ethylbenzene	8.7	0.039	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Methyl tert-butyl ether (MTBE)	2.2	0.092	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,4-Trimethylbenzene	20	0.23	1.6		mg/Kg	50	8/19/2021 4:05:58 PM	R80682
1,3,5-Trimethylbenzene	4.8	0.036	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.037	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.064	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Naphthalene	1.2	0.060	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1-Methylnaphthalene	1.2	0.19	0.65		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Methylnaphthalene	2.0	0.15	0.65		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Acetone	ND	0.53	2.4		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromobenzene	ND	0.034	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromodichloromethane	ND	0.021	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromoform	ND	0.039	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromomethane	ND	0.27	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Butanone	ND	0.70	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Carbon disulfide	ND	0.067	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Carbon tetrachloride	ND	0.018	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chlorobenzene	ND	0.029	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chloroethane	ND	0.061	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chloroform	ND	0.023	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chloromethane	ND	0.057	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Chlorotoluene	ND	0.022	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.085	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
cis-1,2-DCE	ND	0.080	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
cis-1,3-Dichloropropene	ND	0.024	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.070	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Dibromochloromethane	ND	0.026	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Dibromomethane	ND	0.038	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dichlorobenzene	ND	0.034	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,3-Dichlorobenzene	ND	0.031	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,4-Dichlorobenzene	ND	0.043	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Dichlorodifluoromethane	ND	0.063	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1-Dichloroethane	ND	0.047	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1-Dichloroethene	ND	0.035	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dichloropropane	ND	0.032	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,3-Dichloropropane	ND	0.036	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2,2-Dichloropropane	ND	0.023	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1-Dichloropropene	ND	0.020	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Hexachlorobutadiene	ND	0.11	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Hexanone	ND	0.071	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Isopropylbenzene	1.2	0.030	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
4-Isopropyltoluene	0.23	0.042	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
4-Methyl-2-pentanone	ND	0.19	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Methylene chloride	ND	0.12	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
n-Butylbenzene	0.71	0.043	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
n-Propylbenzene	4.2	0.026	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
sec-Butylbenzene	0.37	0.13	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Styrene	ND	0.022	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
tert-Butylbenzene	ND	0.038	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.024	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.052	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Tetrachloroethene (PCE)	ND	0.044	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
trans-1,2-DCE	ND	0.031	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
trans-1,3-Dichloropropene	ND	0.038	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,3-Trichlorobenzene	ND	0.025	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,4-Trichlorobenzene	ND	0.056	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,1-Trichloroethane	ND	0.036	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,2-Trichloroethane	ND	0.041	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Trichloroethene (TCE)	ND	0.032	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Trichlorofluoromethane	ND	0.037	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,3-Trichloropropane	ND	0.068	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.031	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Xylenes, Total	12	0.085	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Surr: Dibromofluoromethane	102		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
Surr: Toluene-d8	107		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
Surr: 4-Bromofluorobenzene	88.8		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	270	4.5	16		mg/Kg	5	8/18/2021 3:27:39 PM	B80646
Surr: BFB	98.3	0	70-130		%Rec	5	8/18/2021 3:27:39 PM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	290	4.8	9.8		mg/Kg	1	8/17/2021 4:05:33 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 4:05:33 PM	62000
Surr: DNOP	110	0	70-130		%Rec	1	8/17/2021 4:05:33 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:43:55 PM	62062
Barium	390	10	21		mg/Kg	200	8/26/2021 5:39:21 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:43:55 PM	62062
Chromium	21	1.0	2.1		mg/Kg	20	8/27/2021 5:24:05 PM	62062
Lead	14	1.0	2.1		mg/Kg	20	8/28/2021 3:09:18 PM	62062
Selenium	1.8	1.2	2.1	J	mg/Kg	20	8/26/2021 5:43:55 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:43:55 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0072	0.0028	0.036	J	mg/Kg	1	8/25/2021 11:45:52 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.089	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Acenaphthylene	ND	0.090	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Aniline	ND	0.069	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Anthracene	ND	0.090	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Azobenzene	ND	0.099	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benz(a)anthracene	ND	0.064	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(a)pyrene	ND	0.094	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(b)fluoranthene	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(k)fluoranthene	ND	0.075	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzoic acid	ND	0.12	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzyl alcohol	ND	0.082	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-chloroethoxy)methane	ND	0.076	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-ethylhexyl)phthalate	ND	0.21	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Butyl benzyl phthalate	ND	0.061	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Carbazole	ND	0.088	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Chloro-3-methylphenol	ND	0.084	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Chloroaniline	ND	0.097	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Chloronaphthalene	ND	0.094	0.25		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Chlorophenyl phenyl ether	ND	0.084	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.088	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Di-n-butyl phthalate	ND	0.28	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Di-n-octyl phthalate	ND	0.13	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,2-Dichlorobenzene	ND	0.081	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,3-Dichlorobenzene	ND	0.071	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,4-Dichlorobenzene	ND	0.084	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Diethyl phthalate	ND	0.32	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Dimethyl phthalate	ND	0.092	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dichlorophenol	ND	0.081	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dimethylphenol	ND	0.071	0.30		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.084	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dinitrophenol	ND	0.050	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,6-Dinitrotoluene	ND	0.10	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Fluoranthene	ND	0.081	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Fluorene	ND	0.089	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachlorobenzene	ND	0.089	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachlorobutadiene	ND	0.093	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachloroethane	ND	0.088	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Isophorone	ND	0.081	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1-Methylnaphthalene	0.73	0.092	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Methylnaphthalene	1.2	0.082	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Methylphenol	ND	0.084	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
3+4-Methylphenol	ND	0.082	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
N-Nitrosodi-n-propylamine	ND	0.092	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Naphthalene	0.75	0.094	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
3-Nitroaniline	ND	0.12	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Nitrobenzene	ND	0.082	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Nitrophenol	ND	0.086	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Nitrophenol	ND	0.082	0.25		mg/Kg	1	8/24/2021 2:13:22 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.086	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Phenanthrene	0.24	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Phenol	0.091	0.077	0.20	J	mg/Kg	1	8/24/2021 2:13:22 AM	62017
Pyrene	ND	0.075	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Pyridine	ND	0.16	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,2,4-Trichlorobenzene	ND	0.091	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4,6-Trichlorophenol	ND	0.086	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Surr: 2-Fluorophenol	47.3		20.3-74.1		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: Phenol-d5	54.0		23.1-92.7		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: 2,4,6-Tribromophenol	73.4		17.3-122		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: Nitrobenzene-d5	43.0		24.7-73.2		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: 2-Fluorobiphenyl	44.8		21.5-90.1		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: 4-Terphenyl-d14	90.1		15-140		%Rec	1	8/24/2021 2:13:22 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.4	0.031	0.080		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Toluene	0.20	0.021	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Ethylbenzene	8.4	0.039	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Methyl tert-butyl ether (MTBE)	1.5	0.091	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,4-Trimethylbenzene	24	0.23	1.6		mg/Kg	50	8/19/2021 4:34:41 PM	R80682
1,3,5-Trimethylbenzene	5.3	0.036	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.037	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.063	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Naphthalene	1.6	0.060	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1-Methylnaphthalene	1.6	0.18	0.64		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Methylnaphthalene	2.7	0.15	0.64		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Acetone	ND	0.52	2.4		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromobenzene	ND	0.034	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromodichloromethane	ND	0.020	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromoform	ND	0.039	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromomethane	ND	0.27	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Butanone	ND	0.70	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Carbon disulfide	ND	0.066	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Carbon tetrachloride	ND	0.018	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chlorobenzene	ND	0.029	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chloroethane	ND	0.060	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chloroform	ND	0.023	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chloromethane	ND	0.056	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Chlorotoluene	ND	0.022	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.085	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
cis-1,2-DCE	ND	0.080	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
cis-1,3-Dichloropropene	ND	0.024	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.069	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Dibromochloromethane	ND	0.026	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Dibromomethane	ND	0.038	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dichlorobenzene	ND	0.033	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,3-Dichlorobenzene	ND	0.030	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,4-Dichlorobenzene	ND	0.043	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Dichlorodifluoromethane	ND	0.062	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1-Dichloroethane	ND	0.047	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1-Dichloroethene	ND	0.034	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dichloropropane	ND	0.031	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,3-Dichloropropane	ND	0.035	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2,2-Dichloropropane	ND	0.023	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1-Dichloropropene	ND	0.019	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Hexachlorobutadiene	ND	0.11	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Hexanone	ND	0.070	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Isopropylbenzene	1.4	0.030	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
4-Isopropyltoluene	0.30	0.041	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
4-Methyl-2-pentanone	ND	0.19	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Methylene chloride	ND	0.12	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
n-Butylbenzene	0.97	0.043	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
n-Propylbenzene	5.1	0.026	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
sec-Butylbenzene	0.48	0.13	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Styrene	ND	0.022	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
tert-Butylbenzene	ND	0.037	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.024	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.052	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Tetrachloroethene (PCE)	ND	0.044	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
trans-1,2-DCE	ND	0.031	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
trans-1,3-Dichloropropene	ND	0.038	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,3-Trichlorobenzene	ND	0.025	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,4-Trichlorobenzene	ND	0.056	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,1-Trichloroethane	ND	0.036	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,2-Trichloroethane	ND	0.040	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Trichloroethene (TCE)	ND	0.032	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Trichlorofluoromethane	ND	0.037	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,3-Trichloropropane	ND	0.068	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.031	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Xylenes, Total	12	0.084	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Surr: Dibromofluoromethane	99.3		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
Surr: Toluene-d8	106		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
Surr: 4-Bromofluorobenzene	91.7		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	350	4.5	16		mg/Kg	5	8/18/2021 5:23:01 PM	B80646
Surr: BFB	97.4	0	70-130		%Rec	5	8/18/2021 5:23:01 PM	B80646

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB6 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	170	24	48		mg/Kg	5	8/19/2021 2:58:45 AM	62000
Motor Oil Range Organics (MRO)	590	240	240		mg/Kg	5	8/19/2021 2:58:45 AM	62000
Surr: DNOP	120	0	70-130		%Rec	5	8/19/2021 2:58:45 AM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.5	0.98	2.0	J	mg/Kg	20	8/26/2021 5:53:02 PM	62062
Barium	380	9.8	20		mg/Kg	200	8/26/2021 5:48:28 PM	62062
Cadmium	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:53:02 PM	62062
Chromium	18	0.98	2.0		mg/Kg	20	8/27/2021 5:28:38 PM	62062
Lead	60	0.98	2.0		mg/Kg	20	8/28/2021 3:12:45 PM	62062
Selenium	1.3	1.1	2.0	J	mg/Kg	20	8/26/2021 5:53:02 PM	62062
Silver	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:53:02 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.13	0.0028	0.035		mg/Kg	1	8/25/2021 11:48:03 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Acenaphthylene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Aniline	ND	17	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Anthracene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Azobenzene	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benz(a)anthracene	ND	16	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(a)pyrene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(b)fluoranthene	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(g,h,i)perylene	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(k)fluoranthene	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzoic acid	ND	31	250	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzyl alcohol	ND	20	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-chloroethoxy)methane	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-chloroethyl)ether	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-chloroisopropyl)ether	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-ethylhexyl)phthalate	ND	54	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Bromophenyl phenyl ether	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Butyl benzyl phthalate	ND	15	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Carbazole	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Chloro-3-methylphenol	ND	21	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Chloronaphthalene	ND	24	62	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Chlorophenol	ND	27	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Chlorophenyl phenyl ether	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Di-n-butyl phthalate	ND	70	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Di-n-octyl phthalate	ND	32	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Dibenz(a,h)anthracene	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Dibenzofuran	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,2-Dichlorobenzene	ND	20	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,3-Dichlorobenzene	ND	18	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,4-Dichlorobenzene	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
3,3´-Dichlorobenzidine	ND	37	62	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Diethyl phthalate	ND	81	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Dimethyl phthalate	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dichlorophenol	ND	20	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dimethylphenol	ND	18	75	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4,6-Dinitro-2-methylphenol	ND	21	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dinitrophenol	ND	13	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dinitrotoluene	ND	30	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Fluoranthene	ND	20	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Fluorene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachlorobenzene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachlorobutadiene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachlorocyclopentadiene	ND	28	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachloroethane	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Indeno(1,2,3-cd)pyrene	ND	29	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Isophorone	ND	20	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1-Methylnaphthalene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Methylnaphthalene	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Methylphenol	ND	21	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
3+4-Methylphenol	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
N-Nitrosodi-n-propylamine	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
N-Nitrosodimethylamine	ND	37	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
N-Nitrosodiphenylamine	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Naphthalene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Nitroaniline	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
3-Nitroaniline	ND	29	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Nitroaniline	ND	32	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Nitrobenzene	ND	20	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Nitrophenol	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Nitrophenol	ND	20	62	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Phenanthrene	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Phenol	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Pyrene	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Pyridine	ND	40	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,2,4-Trichlorobenzene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4,5-Trichlorophenol	ND	16	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4,6-Trichlorophenol	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.0098	0.0094	0.024	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
Toluene	ND	0.0063	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Ethylbenzene	0.10	0.012	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Methyl tert-butyl ether (MTBE)	0.087	0.027	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,4-Trimethylbenzene	0.51	0.0069	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,3,5-Trimethylbenzene	0.023	0.011	0.049	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Naphthalene	0.17	0.018	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1-Methylnaphthalene	0.13	0.056	0.19	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Methylnaphthalene	0.21	0.045	0.19		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Acetone	ND	0.16	0.73		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromodichloromethane	ND	0.0062	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromoform	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromomethane	ND	0.081	0.15		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Butanone	ND	0.21	0.49		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Carbon disulfide	ND	0.020	0.49		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Carbon tetrachloride	ND	0.0054	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chlorobenzene	ND	0.0087	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chloroethane	ND	0.018	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chloroform	ND	0.0069	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Chlorotoluene	ND	0.0065	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.026	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
cis-1,2-DCE	ND	0.024	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
cis-1,3-Dichloropropene	ND	0.0072	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Dibromochloromethane	ND	0.0078	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Dibromomethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dichlorobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,3-Dichlorobenzene	ND	0.0092	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,4-Dichlorobenzene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Dichlorodifluoromethane	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1-Dichloroethane	ND	0.014	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1-Dichloroethene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dichloropropane	ND	0.0095	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,3-Dichloropropane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2,2-Dichloropropane	ND	0.0069	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1-Dichloropropene	ND	0.0059	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Hexachlorobutadiene	ND	0.033	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Hexanone	0.038	0.021	0.49	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
Isopropylbenzene	0.017	0.0090	0.049	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
4-Isopropyltoluene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
4-Methyl-2-pentanone	ND	0.057	0.49		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Methylene chloride	ND	0.035	0.15		mg/Kg	1	8/24/2021 1:29:26 AM	62009
n-Butylbenzene	0.038	0.013	0.15	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
n-Propylbenzene	0.065	0.0079	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
sec-Butylbenzene	ND	0.040	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Styrene	ND	0.0066	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
tert-Butylbenzene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,1,2-Tetrachloroethane	ND	0.0071	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,2,2-Tetrachloroethane	ND	0.016	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Tetrachloroethene (PCE)	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
trans-1,2-DCE	ND	0.0094	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
trans-1,3-Dichloropropene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,3-Trichlorobenzene	ND	0.0075	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,1-Trichloroethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,2-Trichloroethane	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Trichloroethene (TCE)	ND	0.0095	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Trichlorofluoromethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,3-Trichloropropane	ND	0.020	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0093	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Xylenes, Total	0.11	0.026	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Surr: Dibromofluoromethane	93.4		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
Surr: Toluene-d8	103		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
Surr: 4-Bromofluorobenzene	111		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	2.8	1.4	4.9	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
Surr: BFB	104	0	70-130		%Rec	1	8/24/2021 1:29:26 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	11000	96	200		mg/Kg	20	8/17/2021 4:25:09 PM	62000
Motor Oil Range Organics (MRO)	ND	980	980	D	mg/Kg	20	8/17/2021 4:25:09 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 4:25:09 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	0.96	1.9	J	mg/Kg	20	8/26/2021 6:02:09 PM	62062
Barium	480	9.6	19		mg/Kg	200	8/26/2021 5:57:35 PM	62062
Cadmium	ND	0.96	1.9		mg/Kg	20	8/26/2021 6:02:09 PM	62062
Chromium	15	0.96	1.9		mg/Kg	20	8/27/2021 5:33:12 PM	62062
Lead	12	0.96	1.9		mg/Kg	20	8/28/2021 3:16:13 PM	62062
Selenium	1.4	1.1	1.9	J	mg/Kg	20	8/26/2021 6:02:09 PM	62062
Silver	ND	0.96	1.9		mg/Kg	20	8/26/2021 6:02:09 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0081	0.0025	0.031	J	mg/Kg	1	8/25/2021 11:50:14 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Acenaphthylene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Aniline	ND	14	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Anthracene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Azobenzene	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benz(a)anthracene	ND	13	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(a)pyrene	ND	19	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(b)fluoranthene	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(g,h,i)perylene	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(k)fluoranthene	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzoic acid	ND	25	200	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzyl alcohol	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-chloroethoxy)methane	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-chloroethyl)ether	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-chloroisopropyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-ethylhexyl)phthalate	ND	42	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Bromophenyl phenyl ether	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Butyl benzyl phthalate	ND	12	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Carbazole	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Chloro-3-methylphenol	ND	17	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Chloroaniline	ND	19	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Chloronaphthalene	ND	19	49	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Chlorophenol	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Chlorophenyl phenyl ether	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Di-n-butyl phthalate	ND	55	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Di-n-octyl phthalate	ND	25	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Dibenz(a,h)anthracene	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Dibenzofuran	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,2-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,3-Dichlorobenzene	ND	14	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,4-Dichlorobenzene	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
3,3´-Dichlorobenzidine	ND	30	49	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Diethyl phthalate	ND	64	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Dimethyl phthalate	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dichlorophenol	ND	16	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dimethylphenol	ND	14	59	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4,6-Dinitro-2-methylphenol	ND	17	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dinitrophenol	ND	9.9	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dinitrotoluene	ND	24	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,6-Dinitrotoluene	ND	20	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Fluoranthene	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Fluorene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachlorobutadiene	ND	19	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachlorocyclopentadiene	ND	22	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachloroethane	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Indeno(1,2,3-cd)pyrene	ND	23	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Isophorone	ND	16	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1-Methylnaphthalene	40	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Methylnaphthalene	65	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Methylphenol	ND	17	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
3+4-Methylphenol	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
N-Nitrosodi-n-propylamine	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
N-Nitrosodimethylamine	ND	29	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
N-Nitrosodiphenylamine	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Naphthalene	33	19	39	JD	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Nitroaniline	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
3-Nitroaniline	ND	23	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Nitroaniline	ND	25	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Nitrobenzene	ND	16	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Nitrophenol	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Nitrophenol	ND	16	49	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	17	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Phenanthrene	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Phenol	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Pyrene	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Pyridine	ND	32	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,2,4-Trichlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4,5-Trichlorophenol	ND	13	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4,6-Trichlorophenol	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.25	0.013	0.033		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Toluene	0.018	0.0084	0.066	J	mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Ethylbenzene	11	0.40	1.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
Methyl tert-butyl ether (MTBE)	1.2	0.037	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,4-Trimethylbenzene	81	0.23	1.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
1,3,5-Trimethylbenzene	3.5	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.026	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Naphthalene	20	0.61	3.3		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
1-Methylnaphthalene	25	1.9	6.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
2-Methylnaphthalene	42	1.5	6.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
Acetone	ND	0.21	0.98		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromobenzene	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromodichloromethane	ND	0.0083	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromoform	ND	0.016	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromomethane	ND	0.11	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2-Butanone	ND	0.28	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Carbon disulfide	ND	0.027	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Carbon tetrachloride	ND	0.0073	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chlorobenzene	ND	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chloroethane	ND	0.025	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chloroform	ND	0.0093	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chloromethane	ND	0.023	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2-Chlorotoluene	ND	0.0088	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB6 (2.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.034	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
cis-1,2-DCE	ND	0.032	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
cis-1,3-Dichloropropene	ND	0.0097	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.028	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Dibromochloromethane	ND	0.010	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Dibromomethane	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dichlorobenzene	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,3-Dichlorobenzene	ND	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,4-Dichlorobenzene	ND	0.018	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Dichlorodifluoromethane	ND	0.025	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1-Dichloroethane	ND	0.019	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1-Dichloroethene	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dichloropropane	ND	0.013	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,3-Dichloropropane	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2,2-Dichloropropane	ND	0.0093	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1-Dichloropropene	ND	0.0079	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Hexachlorobutadiene	ND	0.045	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2-Hexanone	ND	0.029	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Isopropylbenzene	2.5	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
4-Isopropyltoluene	2.8	0.017	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
4-Methyl-2-pentanone	ND	0.076	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Methylene chloride	ND	0.047	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
n-Butylbenzene	6.3	0.018	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
n-Propylbenzene	9.1	0.26	1.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
sec-Butylbenzene	3.2	0.054	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Styrene	ND	0.0089	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
tert-Butylbenzene	0.063	0.015	0.066	J	mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0096	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.021	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Tetrachloroethene (PCE)	ND	0.018	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
trans-1,2-DCE	ND	0.013	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
trans-1,3-Dichloropropene	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,3-Trichlorobenzene	ND	0.010	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,4-Trichlorobenzene	ND	0.023	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,1-Trichloroethane	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,2-Trichloroethane	ND	0.016	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Trichloroethene (TCE)	ND	0.013	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Trichlorofluoromethane	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,3-Trichloropropane	ND	0.028	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Xylenes, Total	12	0.034	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Surr: Dibromofluoromethane	95.2		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
Surr: Toluene-d8	101		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
Surr: 4-Bromofluorobenzene	92.9		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	290	1.8	6.6		mg/Kg	2	8/18/2021 7:17:57 PM	B80646
Surr: BFB	89.4	0	70-130		%Rec	2	8/18/2021 7:17:57 PM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	16000	95	190		mg/Kg	20	8/17/2021 4:34:55 PM	62000
Motor Oil Range Organics (MRO)	ND	960	960	D	mg/Kg	20	8/17/2021 4:34:55 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 4:34:55 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	1.0	2.0	J	mg/Kg	20	8/26/2021 6:11:16 PM	62062
Barium	360	10	20		mg/Kg	200	8/26/2021 6:06:42 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:11:16 PM	62062
Chromium	14	1.0	2.0		mg/Kg	20	8/27/2021 5:37:46 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/28/2021 3:19:40 PM	62062
Selenium	1.5	1.1	2.0	J	mg/Kg	20	8/26/2021 6:11:16 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:11:16 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0089	0.0026	0.032	J	mg/Kg	1	8/25/2021 11:52:23 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Acenaphthylene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Aniline	ND	35	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Anthracene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Azobenzene	ND	50	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benz(a)anthracene	ND	32	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(a)pyrene	ND	47	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(b)fluoranthene	ND	53	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(g,h,i)perylene	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(k)fluoranthene	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzoic acid	ND	62	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzyl alcohol	ND	41	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-chloroethoxy)methane	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-chloroethyl)ether	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-chloroisopropyl)ether	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-ethylhexyl)phthalate	ND	110	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Bromophenyl phenyl ether	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Butyl benzyl phthalate	ND	30	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Carbazole	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Chloro-3-methylphenol	ND	42	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Chloroaniline	ND	49	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Chloronaphthalene	ND	47	120	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Chlorophenol	ND	53	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Chlorophenyl phenyl ether	ND	42	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017

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Qualifiers:

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Di-n-butyl phthalate	ND	140	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Di-n-octyl phthalate	ND	64	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Dibenz(a,h)anthracene	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Dibenzofuran	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,2-Dichlorobenzene	ND	40	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,3-Dichlorobenzene	ND	36	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,4-Dichlorobenzene	ND	42	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
3,3´-Dichlorobenzidine	ND	75	120	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Diethyl phthalate	ND	160	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Dimethyl phthalate	ND	46	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dichlorophenol	ND	41	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dimethylphenol	ND	36	150	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4,6-Dinitro-2-methylphenol	ND	42	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dinitrophenol	ND	25	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dinitrotoluene	ND	61	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,6-Dinitrotoluene	ND	51	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Fluoranthene	ND	40	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Fluorene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachlorobenzene	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachlorobutadiene	ND	47	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachlorocyclopentadiene	ND	57	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachloroethane	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Indeno(1,2,3-cd)pyrene	ND	58	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Isophorone	ND	41	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1-Methylnaphthalene	70	46	100	JD	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Methylnaphthalene	110	41	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Methylphenol	ND	42	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
3+4-Methylphenol	ND	41	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
N-Nitrosodi-n-propylamine	ND	46	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
N-Nitrosodimethylamine	ND	74	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
N-Nitrosodiphenylamine	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Naphthalene	57	47	100	JD	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Nitroaniline	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
3-Nitroaniline	ND	58	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Nitroaniline	ND	64	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Nitrobenzene	ND	41	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Nitrophenol	ND	43	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Nitrophenol	ND	41	120	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	43	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Phenanthrene	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Phenol	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Pyrene	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Pyridine	ND	80	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,2,4-Trichlorobenzene	ND	46	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4,5-Trichlorophenol	ND	32	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4,6-Trichlorophenol	ND	43	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.4	0.079	0.21		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Toluene	0.24	0.053	0.41	J	mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Ethylbenzene	34	0.10	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Methyl tert-butyl ether (MTBE)	11	0.23	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,4-Trimethylbenzene	28	0.058	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,3,5-Trimethylbenzene	4.1	0.093	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.094	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.16	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Naphthalene	32	0.15	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1-Methylnaphthalene	38	4.7	16		mg/Kg	100	8/19/2021 5:32:07 PM	R80682
2-Methylnaphthalene	65	3.8	16		mg/Kg	100	8/19/2021 5:32:07 PM	R80682
Acetone	ND	1.3	6.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromobenzene	ND	0.087	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromodichloromethane	ND	0.052	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromoform	ND	0.099	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromomethane	ND	0.68	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2-Butanone	ND	1.8	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Carbon disulfide	ND	0.17	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Carbon tetrachloride	ND	0.046	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chlorobenzene	ND	0.074	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chloroethane	ND	0.15	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chloroform	ND	0.059	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chloromethane	ND	0.14	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2-Chlorotoluene	ND	0.055	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.22	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
cis-1,2-DCE	ND	0.20	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
cis-1,3-Dichloropropene	ND	0.061	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.18	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Dibromochloromethane	ND	0.066	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Dibromomethane	ND	0.096	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dichlorobenzene	ND	0.086	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,3-Dichlorobenzene	ND	0.078	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,4-Dichlorobenzene	ND	0.11	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Dichlorodifluoromethane	ND	0.16	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1-Dichloroethane	ND	0.12	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1-Dichloroethene	ND	0.088	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dichloropropane	ND	0.080	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,3-Dichloropropane	ND	0.091	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2,2-Dichloropropane	ND	0.059	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1-Dichloropropene	ND	0.050	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Hexachlorobutadiene	ND	0.28	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2-Hexanone	ND	0.18	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Isopropylbenzene	4.7	0.076	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
4-Isopropyltoluene	2.7	0.11	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
4-Methyl-2-pentanone	ND	0.48	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Methylene chloride	ND	0.30	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
n-Butylbenzene	8.9	0.11	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
n-Propylbenzene	16	0.067	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
sec-Butylbenzene	4.8	0.34	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Styrene	ND	0.056	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
tert-Butylbenzene	0.14	0.095	0.41	J	mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.061	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.13	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Tetrachloroethene (PCE)	ND	0.11	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
trans-1,2-DCE	ND	0.080	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
trans-1,3-Dichloropropene	ND	0.097	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,3-Trichlorobenzene	ND	0.064	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,4-Trichlorobenzene	ND	0.14	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,1-Trichloroethane	ND	0.091	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,2-Trichloroethane	ND	0.10	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Trichloroethene (TCE)	ND	0.081	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Trichlorofluoromethane	ND	0.094	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,3-Trichloropropane	ND	0.17	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.079	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Xylenes, Total	18	0.22	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Surr: Dibromofluoromethane	99.1		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
Surr: Toluene-d8	104		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
Surr: 4-Bromofluorobenzene	88.0		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	1000	11	41		mg/Kg	10	8/18/2021 8:15:20 PM	B80646
Surr: BFB	91.8	0	70-130		%Rec	10	8/18/2021 8:15:20 PM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	12	4.8	9.7		mg/Kg	1	8/18/2021 1:30:24 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/18/2021 1:30:24 PM	62000
Surr: DNOP	116	0	70-130		%Rec	1	8/18/2021 1:30:24 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:20:23 PM	62062
Barium	360	10	20		mg/Kg	200	8/26/2021 6:15:50 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:20:23 PM	62062
Chromium	14	1.0	2.0		mg/Kg	20	8/27/2021 5:42:20 PM	62062
Lead	11	1.0	2.0		mg/Kg	20	8/28/2021 3:23:08 PM	62062
Selenium	1.3	1.2	2.0	J	mg/Kg	20	8/26/2021 6:20:23 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:20:23 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0074	0.0024	0.031	J	mg/Kg	1	8/25/2021 11:54:33 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Acenaphthylene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Aniline	ND	0.64	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Anthracene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Azobenzene	ND	0.93	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benz(a)anthracene	ND	0.60	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(a)pyrene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(b)fluoranthene	ND	0.99	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(g,h,i)perylene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(k)fluoranthene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzoic acid	ND	1.2	9.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzyl alcohol	ND	0.76	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-chloroethoxy)methane	ND	0.71	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-chloroethyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.94	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.0	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Bromophenyl phenyl ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Carbazole	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Chloro-3-methylphenol	ND	0.78	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Chloroaniline	ND	0.90	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Chloronaphthalene	ND	0.88	2.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Chlorophenol	ND	0.99	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Chlorophenyl phenyl ether	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017

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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Di-n-butyl phthalate	ND	2.6	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Di-n-octyl phthalate	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Dibenz(a,h)anthracene	ND	0.98	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Dibenzofuran	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,2-Dichlorobenzene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,3-Dichlorobenzene	ND	0.66	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,4-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
3,3´-Dichlorobenzidine	ND	1.4	2.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Diethyl phthalate	ND	3.0	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Dimethyl phthalate	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dichlorophenol	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dimethylphenol	ND	0.66	2.8	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dinitrophenol	ND	0.47	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dinitrotoluene	ND	1.1	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,6-Dinitrotoluene	ND	0.95	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Fluoranthene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Fluorene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachlorobutadiene	ND	0.87	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachloroethane	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Isophorone	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1-Methylnaphthalene	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Methylnaphthalene	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
3+4-Methylphenol	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
N-Nitrosodi-n-propylamine	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
N-Nitrosodiphenylamine	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Naphthalene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Nitroaniline	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Nitroaniline	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Nitrobenzene	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Nitrophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Nitrophenol	ND	0.76	2.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.80	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Phenanthrene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Phenol	ND	0.72	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Pyrene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Pyridine	ND	1.5	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,2,4-Trichlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4,5-Trichlorophenol	ND	0.59	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4,6-Trichlorophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0053	0.014		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Toluene	0.012	0.0035	0.027	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Ethylbenzene	ND	0.0067	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.015	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,4-Trimethylbenzene	0.013	0.0039	0.027	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,3,5-Trimethylbenzene	ND	0.0061	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.0062	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.011	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Naphthalene	ND	0.010	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1-Methylnaphthalene	ND	0.031	0.11		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Methylnaphthalene	0.032	0.025	0.11	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Acetone	ND	0.089	0.41		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromobenzene	ND	0.0058	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromodichloromethane	ND	0.0035	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromoform	ND	0.0066	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromomethane	ND	0.045	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Butanone	ND	0.12	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Carbon disulfide	ND	0.011	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Carbon tetrachloride	ND	0.0030	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chlorobenzene	ND	0.0049	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chloroethane	ND	0.010	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chloroform	ND	0.0039	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chloromethane	ND	0.0096	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Chlorotoluene	ND	0.0037	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
cis-1,2-DCE	ND	0.014	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
cis-1,3-Dichloropropene	ND	0.0041	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.012	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Dibromochloromethane	ND	0.0044	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Dibromomethane	ND	0.0064	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dichlorobenzene	ND	0.0057	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,3-Dichlorobenzene	ND	0.0052	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,4-Dichlorobenzene	ND	0.0073	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Dichlorodifluoromethane	ND	0.011	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1-Dichloroethane	ND	0.0080	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1-Dichloroethene	ND	0.0059	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dichloropropane	ND	0.0053	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,3-Dichloropropane	ND	0.0060	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2,2-Dichloropropane	ND	0.0039	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1-Dichloropropene	ND	0.0033	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Hexachlorobutadiene	ND	0.019	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Hexanone	ND	0.012	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Isopropylbenzene	ND	0.0051	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
4-Isopropyltoluene	ND	0.0070	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
4-Methyl-2-pentanone	ND	0.032	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Methylene chloride	ND	0.020	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
n-Butylbenzene	ND	0.0073	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
n-Propylbenzene	ND	0.0044	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
sec-Butylbenzene	ND	0.023	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Styrene	ND	0.0037	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
tert-Butylbenzene	ND	0.0063	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0040	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.0088	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Tetrachloroethene (PCE)	ND	0.0075	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
trans-1,2-DCE	ND	0.0053	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
trans-1,3-Dichloropropene	ND	0.0064	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,3-Trichlorobenzene	ND	0.0042	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,4-Trichlorobenzene	ND	0.0095	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,1-Trichloroethane	ND	0.0060	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,2-Trichloroethane	ND	0.0068	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Trichloroethene (TCE)	ND	0.0054	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Trichlorofluoromethane	ND	0.0062	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,3-Trichloropropane	ND	0.011	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
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S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0052	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Xylenes, Total	0.017	0.014	0.055	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
Surr: 1,2-Dichloroethane-d4	96.6		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
Surr: Toluene-d8	104		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
Surr: 4-Bromofluorobenzene	88.1		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.76	2.7		mg/Kg	1	8/18/2021 9:12:37 PM	B80646
Surr: BFB	91.1	0	70-130		%Rec	1	8/18/2021 9:12:37 PM	B80646

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	18	4.9	9.9		mg/Kg	1	8/17/2021 4:54:23 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 4:54:23 PM	62000
Surr: DNOP	113	0	70-130		%Rec	1	8/17/2021 4:54:23 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:38:41 PM	62062
Barium	340	10	20		mg/Kg	200	8/26/2021 6:34:07 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:38:41 PM	62062
Chromium	20	1.0	2.0		mg/Kg	20	8/27/2021 5:46:55 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/28/2021 3:26:36 PM	62062
Selenium	1.7	1.2	2.0	J	mg/Kg	20	8/26/2021 6:38:41 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:38:41 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0083	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:56:42 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.85	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Acenaphthylene	ND	0.86	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Anthracene	ND	0.86	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Azobenzene	ND	0.95	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benz(a)anthracene	ND	0.61	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(a)pyrene	ND	0.90	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(g,h,i)perylene	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzoic acid	ND	1.2	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzyl alcohol	ND	0.78	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-chloroisopropyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.0	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Bromophenyl phenyl ether	ND	0.99	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Chloro-3-methylphenol	ND	0.80	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Chloroaniline	ND	0.93	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Chloronaphthalene	ND	0.90	2.4	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.84	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Dibenzofuran	ND	0.99	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,2-Dichlorobenzene	ND	0.77	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Dimethyl phthalate	ND	0.88	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dichlorophenol	ND	0.77	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,6-Dinitrotoluene	ND	0.97	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Fluoranthene	ND	0.77	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Fluorene	ND	0.85	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachlorobutadiene	ND	0.89	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachloroethane	ND	0.84	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
N-Nitrosodi-n-propylamine	ND	0.88	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
N-Nitrosodiphenylamine	ND	0.99	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Naphthalene	ND	0.90	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Nitroaniline	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Nitrobenzene	ND	0.78	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Nitrophenol	ND	0.82	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Nitrophenol	ND	0.78	2.4	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
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P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.82	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Phenanthrene	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Phenol	ND	0.73	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Pyrene	ND	0.72	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,2,4-Trichlorobenzene	ND	0.87	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4,6-Trichlorophenol	ND	0.82	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0067	0.017		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Toluene	0.0051	0.0045	0.035	J	mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Ethylbenzene	ND	0.0084	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Methyl tert-butyl ether (MTBE)	0.054	0.020	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,4-Trimethylbenzene	0.0097	0.0049	0.035	J	mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,3,5-Trimethylbenzene	ND	0.0078	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.0079	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.014	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Naphthalene	ND	0.013	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1-Methylnaphthalene	ND	0.040	0.14		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Methylnaphthalene	ND	0.032	0.14		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Acetone	ND	0.11	0.52		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromobenzene	ND	0.0074	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromodichloromethane	ND	0.0044	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromoform	ND	0.0084	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromomethane	ND	0.057	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Butanone	ND	0.15	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Carbon disulfide	ND	0.014	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Carbon tetrachloride	ND	0.0039	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chlorobenzene	ND	0.0062	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chloroethane	ND	0.013	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chloroform	ND	0.0049	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Chlorotoluene	ND	0.0046	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
cis-1,2-DCE	ND	0.017	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
cis-1,3-Dichloropropene	ND	0.0052	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.015	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Dibromochloromethane	ND	0.0055	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Dibromomethane	ND	0.0081	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dichlorobenzene	ND	0.0072	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,3-Dichlorobenzene	ND	0.0065	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,4-Dichlorobenzene	ND	0.0093	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Dichlorodifluoromethane	ND	0.013	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1-Dichloroethane	ND	0.010	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1-Dichloroethene	ND	0.0074	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dichloropropane	ND	0.0068	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,3-Dichloropropane	ND	0.0076	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2,2-Dichloropropane	ND	0.0049	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1-Dichloropropene	ND	0.0042	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Hexachlorobutadiene	ND	0.024	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Hexanone	ND	0.015	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Isopropylbenzene	ND	0.0064	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
4-Isopropyltoluene	ND	0.0089	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
4-Methyl-2-pentanone	ND	0.040	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Methylene chloride	ND	0.025	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
n-Butylbenzene	ND	0.0093	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
n-Propylbenzene	ND	0.0056	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
sec-Butylbenzene	ND	0.029	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Styrene	ND	0.0047	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
tert-Butylbenzene	ND	0.0080	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0051	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Tetrachloroethene (PCE)	ND	0.0095	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
trans-1,2-DCE	ND	0.0067	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
trans-1,3-Dichloropropene	ND	0.0081	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,3-Trichlorobenzene	ND	0.0054	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,1-Trichloroethane	ND	0.0076	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,2-Trichloroethane	ND	0.0087	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Trichloroethene (TCE)	ND	0.0068	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Trichlorofluoromethane	ND	0.0079	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,3-Trichloropropane	ND	0.015	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0066	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Xylenes, Total	ND	0.018	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Surr: Dibromofluoromethane	107		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.4		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
Surr: Toluene-d8	104		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
Surr: 4-Bromofluorobenzene	92.4		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.96	3.5		mg/Kg	1	8/18/2021 9:41:15 PM	B80646
Surr: BFB	95.6	0	70-130		%Rec	1	8/18/2021 9:41:15 PM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	470	4.8	9.6		mg/Kg	1	8/17/2021 5:04:07 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 5:04:07 PM	62000
Surr: DNOP	115	0	70-130		%Rec	1	8/17/2021 5:04:07 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:47:48 PM	62062
Barium	280	10	20		mg/Kg	200	8/26/2021 6:43:15 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:47:48 PM	62062
Chromium	18	1.0	2.0		mg/Kg	20	8/27/2021 6:00:41 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/30/2021 12:52:18 PM	62062
Selenium	1.5	1.2	2.0	J	mg/Kg	20	8/26/2021 6:47:48 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:47:48 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0084	0.0027	0.034	J	mg/Kg	1	8/25/2021 11:58:51 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.013	0.0064	0.017	J	mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Toluene	0.039	0.0043	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Ethylbenzene	0.18	0.0081	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Methyl tert-butyl ether (MTBE)	0.039	0.019	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,4-Trimethylbenzene	0.43	0.0047	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,3,5-Trimethylbenzene	0.47	0.0074	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.0076	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.013	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Naphthalene	ND	0.012	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1-Methylnaphthalene	0.62	0.038	0.13		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Methylnaphthalene	0.52	0.031	0.13		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Acetone	ND	0.11	0.50		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromobenzene	ND	0.0070	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromodichloromethane	ND	0.0042	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromoform	ND	0.0080	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromomethane	ND	0.055	0.10		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Butanone	ND	0.14	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Carbon disulfide	ND	0.014	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Carbon tetrachloride	ND	0.0037	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chlorobenzene	ND	0.0060	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chloroethane	ND	0.012	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chloroform	ND	0.0047	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Chlorotoluene	ND	0.0044	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SS2 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.017	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
cis-1,2-DCE	ND	0.016	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
cis-1,3-Dichloropropene	ND	0.0049	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.014	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Dibromochloromethane	ND	0.0053	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Dibromomethane	ND	0.0078	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dichlorobenzene	ND	0.0069	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,3-Dichlorobenzene	ND	0.0063	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,4-Dichlorobenzene	ND	0.0089	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Dichlorodifluoromethane	ND	0.013	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1-Dichloroethane	ND	0.0097	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1-Dichloroethene	ND	0.0071	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dichloropropane	ND	0.0065	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,3-Dichloropropane	ND	0.0073	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2,2-Dichloropropane	ND	0.0047	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1-Dichloropropene	ND	0.0040	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Hexachlorobutadiene	ND	0.023	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Hexanone	ND	0.014	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Isopropylbenzene	ND	0.0062	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
4-Isopropyltoluene	0.13	0.0085	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
4-Methyl-2-pentanone	ND	0.039	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Methylene chloride	ND	0.024	0.10		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
n-Butylbenzene	0.089	0.0089	0.10	J	mg/Kg	1	8/18/2021 10:09:53 PM	A80646
n-Propylbenzene	0.084	0.0054	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
sec-Butylbenzene	0.057	0.027	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Styrene	ND	0.0045	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
tert-Butylbenzene	ND	0.0077	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0049	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Tetrachloroethene (PCE)	ND	0.0091	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
trans-1,2-DCE	ND	0.0064	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
trans-1,3-Dichloropropene	ND	0.0078	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,3-Trichlorobenzene	ND	0.0051	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,1-Trichloroethane	ND	0.0073	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,2-Trichloroethane	ND	0.0083	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Trichloroethene (TCE)	ND	0.0065	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Trichlorofluoromethane	ND	0.0075	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,3-Trichloropropane	ND	0.014	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646

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Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0063	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Xylenes, Total	0.13	0.017	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Surr: Dibromofluoromethane	102		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.1		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
Surr: Toluene-d8	105		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
Surr: 4-Bromofluorobenzene	95.0		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	24	0.92	3.3		mg/Kg	1	8/18/2021 10:09:53 PM	B80646
Surr: BFB	93.0	0	70-130		%Rec	1	8/18/2021 10:09:53 PM	B80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	430	4.7	9.6		mg/Kg	1	8/17/2021 5:13:54 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 5:13:54 PM	62000
Surr: DNOP	110	0	70-130		%Rec	1	8/17/2021 5:13:54 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:56:57 PM	62062
Barium	280	10	20		mg/Kg	200	8/26/2021 6:52:23 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:56:57 PM	62062
Chromium	19	1.0	2.0		mg/Kg	20	8/27/2021 6:05:16 PM	62062
Lead	14	1.0	2.0		mg/Kg	20	8/30/2021 12:55:46 PM	62062
Selenium	1.6	1.1	2.0	J	mg/Kg	20	8/26/2021 6:56:57 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:56:57 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0080	0.0026	0.033	J	mg/Kg	1	8/25/2021 12:01:01 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Methylnaphthalene	1.1	0.82	2.0	JD	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SS2 (1')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.011	0.0062	0.016	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Toluene	0.0079	0.0041	0.032	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Ethylbenzene	0.36	0.0078	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Methyl tert-butyl ether (MTBE)	0.098	0.018	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,4-Trimethylbenzene	1.9	0.0045	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,3,5-Trimethylbenzene	1.4	0.0072	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0073	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.013	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Naphthalene	0.64	0.012	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1-Methylnaphthalene	2.9	0.037	0.13		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Methylnaphthalene	3.2	0.030	0.13		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Acetone	ND	0.10	0.48		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromobenzene	ND	0.0068	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromodichloromethane	ND	0.0041	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromoform	ND	0.0077	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromomethane	ND	0.053	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Butanone	ND	0.14	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Carbon disulfide	ND	0.013	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Carbon tetrachloride	ND	0.0036	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chlorobenzene	ND	0.0058	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chloroethane	ND	0.012	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chloroform	ND	0.0045	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chloromethane	ND	0.011	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Chlorotoluene	ND	0.0043	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.017	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
cis-1,2-DCE	ND	0.016	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
cis-1,3-Dichloropropene	ND	0.0048	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.014	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Dibromochloromethane	ND	0.0051	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Dibromomethane	ND	0.0075	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dichlorobenzene	ND	0.0066	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,3-Dichlorobenzene	ND	0.0060	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,4-Dichlorobenzene	ND	0.0085	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Dichlorodifluoromethane	ND	0.012	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1-Dichloroethane	ND	0.0093	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1-Dichloroethene	ND	0.0069	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dichloropropane	ND	0.0062	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,3-Dichloropropane	ND	0.0070	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2,2-Dichloropropane	ND	0.0045	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1-Dichloropropene	ND	0.0039	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Hexachlorobutadiene	ND	0.022	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Hexanone	ND	0.014	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Isopropylbenzene	0.11	0.0059	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
4-Isopropyltoluene	0.41	0.0082	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
4-Methyl-2-pentanone	ND	0.037	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Methylene chloride	ND	0.023	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
n-Butylbenzene	0.47	0.0085	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
n-Propylbenzene	0.41	0.0052	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
sec-Butylbenzene	0.32	0.026	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Styrene	ND	0.0044	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
tert-Butylbenzene	0.010	0.0074	0.032	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0047	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.010	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Tetrachloroethene (PCE)	ND	0.0088	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
trans-1,2-DCE	ND	0.0062	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
trans-1,3-Dichloropropene	ND	0.0075	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0049	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,4-Trichlorobenzene	ND	0.011	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,1-Trichloroethane	ND	0.0071	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,2-Trichloroethane	ND	0.0080	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Trichloroethene (TCE)	ND	0.0063	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Trichlorofluoromethane	ND	0.0073	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,3-Trichloropropane	ND	0.013	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0061	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Xylenes, Total	0.048	0.017	0.064	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Surr: Dibromofluoromethane	93.0		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
Surr: 1,2-Dichloroethane-d4	98.0		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
Surr: Toluene-d8	102		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
Surr: 4-Bromofluorobenzene	87.3		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	74	0.89	3.2		mg/Kg	1	8/19/2021 1:01:37 AM	B80646
Surr: BFB	87.6	0	70-130		%Rec	1	8/19/2021 1:01:37 AM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	7600	95	190		mg/Kg	20	8/17/2021 5:23:41 PM	62000
Motor Oil Range Organics (MRO)	ND	960	960		mg/Kg	20	8/17/2021 5:23:41 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 5:23:41 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	1.0	2.1	J	mg/Kg	20	8/26/2021 7:06:03 PM	62062
Barium	360	10	21		mg/Kg	200	8/26/2021 7:01:30 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:06:03 PM	62062
Chromium	15	2.6	5.2		mg/Kg	50	8/27/2021 6:09:51 PM	62062
Lead	66	2.6	5.2		mg/Kg	50	8/30/2021 1:02:45 PM	62062
Selenium	ND	1.2	2.1		mg/Kg	20	8/26/2021 7:06:03 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:06:03 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.20	0.0024	0.031		mg/Kg	1	8/25/2021 12:07:29 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Acenaphthylene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Aniline	ND	13	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Anthracene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Azobenzene	ND	19	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benz(a)anthracene	ND	12	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(a)pyrene	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(b)fluoranthene	ND	21	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(g,h,i)perylene	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(k)fluoranthene	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzoic acid	ND	24	190	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzyl alcohol	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-chloroethoxy)methane	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-chloroethyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-chloroisopropyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-ethylhexyl)phthalate	ND	42	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Bromophenyl phenyl ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Butyl benzyl phthalate	ND	12	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Carbazole	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Chloro-3-methylphenol	ND	16	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Chloroaniline	ND	19	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Chloronaphthalene	ND	18	48	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Chlorophenol	ND	21	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Chlorophenyl phenyl ether	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017

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Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Di-n-butyl phthalate	ND	54	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Di-n-octyl phthalate	ND	25	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Dibenz(a,h)anthracene	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Dibenzofuran	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,2-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,3-Dichlorobenzene	ND	14	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,4-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
3,3´-Dichlorobenzidine	ND	29	48	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Diethyl phthalate	ND	63	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Dimethyl phthalate	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dichlorophenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dimethylphenol	ND	14	58	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4,6-Dinitro-2-methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dinitrophenol	ND	9.7	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dinitrotoluene	ND	23	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,6-Dinitrotoluene	ND	20	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Fluoranthene	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Fluorene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachlorobenzene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachlorobutadiene	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachlorocyclopentadiene	ND	22	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachloroethane	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Indeno(1,2,3-cd)pyrene	ND	22	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Isophorone	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1-Methylnaphthalene	21	18	39	JD	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Methylnaphthalene	35	16	39	JD	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
3+4-Methylphenol	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
N-Nitrosodi-n-propylamine	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
N-Nitrosodimethylamine	ND	29	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
N-Nitrosodiphenylamine	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Naphthalene	24	18	39	JD	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Nitroaniline	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
3-Nitroaniline	ND	22	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Nitroaniline	ND	25	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Nitrobenzene	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Nitrophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Nitrophenol	ND	16	48	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	17	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Phenanthrene	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Phenol	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Pyrene	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Pyridine	ND	31	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,2,4-Trichlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4,5-Trichlorophenol	ND	12	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4,6-Trichlorophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.0	0.030	0.079		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Toluene	18	0.20	1.6		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
Ethylbenzene	16	0.038	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.089	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,4-Trimethylbenzene	49	0.22	1.6		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
1,3,5-Trimethylbenzene	18	0.35	1.6		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
1,2-Dichloroethane (EDC)	ND	0.036	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.062	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Naphthalene	10	0.059	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1-Methylnaphthalene	7.4	0.18	0.63		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Methylnaphthalene	13	0.15	0.63		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Acetone	ND	0.52	2.4		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromobenzene	ND	0.034	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromodichloromethane	ND	0.020	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromoform	ND	0.038	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromomethane	ND	0.26	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Butanone	ND	0.69	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Carbon disulfide	ND	0.065	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Carbon tetrachloride	ND	0.018	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chlorobenzene	ND	0.028	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chloroethane	ND	0.059	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chloroform	ND	0.022	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chloromethane	ND	0.055	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Chlorotoluene	ND	0.021	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.083	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
cis-1,2-DCE	ND	0.078	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
cis-1,3-Dichloropropene	ND	0.023	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.068	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Dibromochloromethane	ND	0.025	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Dibromomethane	ND	0.037	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dichlorobenzene	ND	0.033	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,3-Dichlorobenzene	ND	0.030	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,4-Dichlorobenzene	ND	0.042	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Dichlorodifluoromethane	ND	0.061	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1-Dichloroethane	ND	0.046	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1-Dichloroethene	ND	0.034	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dichloropropane	ND	0.031	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,3-Dichloropropane	ND	0.035	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2,2-Dichloropropane	ND	0.022	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1-Dichloropropene	ND	0.019	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Hexachlorobutadiene	ND	0.11	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Hexanone	ND	0.069	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Isopropylbenzene	1.5	0.029	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
4-Isopropyltoluene	0.49	0.041	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
4-Methyl-2-pentanone	ND	0.18	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Methylene chloride	ND	0.11	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
n-Butylbenzene	1.9	0.042	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
n-Propylbenzene	5.8	0.026	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
sec-Butylbenzene	0.64	0.13	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Styrene	ND	0.022	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
tert-Butylbenzene	ND	0.037	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.023	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.051	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Tetrachloroethene (PCE)	ND	0.043	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
trans-1,2-DCE	ND	0.031	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
trans-1,3-Dichloropropene	ND	0.037	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,3-Trichlorobenzene	ND	0.024	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,4-Trichlorobenzene	ND	0.055	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,1-Trichloroethane	ND	0.035	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,2-Trichloroethane	ND	0.040	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Trichloroethene (TCE)	ND	0.031	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Trichlorofluoromethane	ND	0.036	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,3-Trichloropropane	ND	0.067	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.030	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Xylenes, Total	70	0.83	3.2		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
Surr: Dibromofluoromethane	94.4		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
Surr: Toluene-d8	99.9		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
Surr: 4-Bromofluorobenzene	91.0		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	700	4.4	16		mg/Kg	5	8/19/2021 1:58:44 AM	B80646
Surr: BFB	91.3	0	70-130		%Rec	5	8/19/2021 1:58:44 AM	B80646

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	6700	91	190		mg/Kg	20	8/17/2021 5:33:25 PM	62000
Motor Oil Range Organics (MRO)	ND	930	930	D	mg/Kg	20	8/17/2021 5:33:25 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 5:33:25 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	0.96	1.9	J	mg/Kg	20	8/26/2021 7:15:08 PM	62062
Barium	370	9.6	19		mg/Kg	200	8/26/2021 7:10:35 PM	62062
Cadmium	1.2	0.96	1.9	J	mg/Kg	20	8/26/2021 7:15:08 PM	62062
Chromium	18	0.96	1.9		mg/Kg	20	8/27/2021 6:14:25 PM	62062
Lead	68	0.96	1.9		mg/Kg	20	8/30/2021 1:06:13 PM	62062
Selenium	1.1	1.1	1.9	J	mg/Kg	20	8/26/2021 7:15:08 PM	62062
Silver	ND	0.96	1.9		mg/Kg	20	8/26/2021 7:15:08 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.031	0.0024	0.031		mg/Kg	1	8/25/2021 12:09:38 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Acenaphthylene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Aniline	ND	13	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Anthracene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Azobenzene	ND	19	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benz(a)anthracene	ND	12	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(a)pyrene	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(b)fluoranthene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(g,h,i)perylene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(k)fluoranthene	ND	14	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzoic acid	ND	24	190	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzyl alcohol	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-chloroethoxy)methane	ND	15	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-chloroethyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-chloroisopropyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-ethylhexyl)phthalate	ND	41	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Bromophenyl phenyl ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Butyl benzyl phthalate	ND	12	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Carbazole	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Chloro-3-methylphenol	ND	16	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Chloroaniline	ND	19	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Chloronaphthalene	ND	18	48	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Chlorophenol	ND	21	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Chlorophenyl phenyl ether	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Di-n-butyl phthalate	ND	54	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Di-n-octyl phthalate	ND	25	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Dibenz(a,h)anthracene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Dibenzofuran	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,2-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,3-Dichlorobenzene	ND	14	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,4-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
3,3´-Dichlorobenzidine	ND	29	48	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Diethyl phthalate	ND	63	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Dimethyl phthalate	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dichlorophenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dimethylphenol	ND	14	58	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4,6-Dinitro-2-methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dinitrophenol	ND	9.7	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dinitrotoluene	ND	23	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,6-Dinitrotoluene	ND	20	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Fluoranthene	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Fluorene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachlorobenzene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachlorobutadiene	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachlorocyclopentadiene	ND	22	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachloroethane	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Indeno(1,2,3-cd)pyrene	ND	22	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Isophorone	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1-Methylnaphthalene	23	18	39	JD	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Methylnaphthalene	39	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
3+4-Methylphenol	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
N-Nitrosodi-n-propylamine	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
N-Nitrosodimethylamine	ND	29	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
N-Nitrosodiphenylamine	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Naphthalene	26	18	39	JD	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Nitroaniline	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
3-Nitroaniline	ND	22	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Nitroaniline	ND	25	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Nitrobenzene	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Nitrophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Nitrophenol	ND	16	48	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	17	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Phenanthrene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Phenol	ND	15	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Pyrene	ND	15	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Pyridine	ND	31	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,2,4-Trichlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4,5-Trichlorophenol	ND	12	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4,6-Trichlorophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	6.3	0.26	0.69		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Toluene	23	0.18	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Ethylbenzene	20	0.33	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Methyl tert-butyl ether (MTBE)	0.10	0.031	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,4-Trimethylbenzene	56	0.19	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
1,3,5-Trimethylbenzene	14	0.31	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
1,2-Dichloroethane (EDC)	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.022	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Naphthalene	13	0.51	2.7		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
1-Methylnaphthalene	7.0	1.6	5.5		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
2-Methylnaphthalene	13	1.3	5.5		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Acetone	ND	0.18	0.82		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromobenzene	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromodichloromethane	ND	0.0070	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromoform	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromomethane	ND	0.091	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2-Butanone	ND	0.24	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Carbon disulfide	ND	0.023	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Carbon tetrachloride	ND	0.0061	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chlorobenzene	ND	0.0099	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chloroethane	ND	0.020	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chloroform	ND	0.0078	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chloromethane	ND	0.019	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2-Chlorotoluene	ND	0.0073	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.029	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
cis-1,2-DCE	ND	0.027	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
cis-1,3-Dichloropropene	ND	0.0081	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.024	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Dibromochloromethane	ND	0.0088	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Dibromomethane	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dichlorobenzene	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,3-Dichlorobenzene	ND	0.010	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,4-Dichlorobenzene	ND	0.015	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Dichlorodifluoromethane	ND	0.021	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1-Dichloroethane	ND	0.016	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1-Dichloroethene	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dichloropropane	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,3-Dichloropropane	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2,2-Dichloropropane	ND	0.0078	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1-Dichloropropene	ND	0.0066	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Hexachlorobutadiene	ND	0.037	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2-Hexanone	ND	0.024	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Isopropylbenzene	1.8	0.010	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
4-Isopropyltoluene	0.48	0.014	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
4-Methyl-2-pentanone	ND	0.064	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Methylene chloride	ND	0.040	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
n-Butylbenzene	1.9	0.015	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
n-Propylbenzene	6.6	0.22	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
sec-Butylbenzene	0.67	0.045	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Styrene	0.022	0.0075	0.055	J	mg/Kg	2	8/19/2021 2:55:54 AM	A80646
tert-Butylbenzene	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0080	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.018	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Tetrachloroethene (PCE)	ND	0.015	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
trans-1,2-DCE	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
trans-1,3-Dichloropropene	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0085	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,4-Trichlorobenzene	ND	0.019	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,1-Trichloroethane	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,2-Trichloroethane	ND	0.014	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Trichloroethene (TCE)	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Trichlorofluoromethane	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,3-Trichloropropane	ND	0.023	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.010	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Xylenes, Total	85	0.72	2.7		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Surr: Dibromofluoromethane	91.4		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
Surr: 1,2-Dichloroethane-d4	95.7		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
Surr: Toluene-d8	101		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
Surr: 4-Bromofluorobenzene	85.9		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	770	38	140		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Surr: BFB	95.0	0	70-130		%Rec	50	8/19/2021 3:37:18 PM	R80682

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1500	9.9	20		mg/Kg	2	8/18/2021 7:01:30 PM	62000
Motor Oil Range Organics (MRO)	440	100	100		mg/Kg	2	8/18/2021 7:01:30 PM	62000
Surr: DNOP	127	0	70-130		%Rec	2	8/18/2021 7:01:30 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 7:37:54 PM	62062
Barium	260	10	20		mg/Kg	200	8/26/2021 7:33:22 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 7:37:54 PM	62062
Chromium	15	1.0	2.0		mg/Kg	20	8/27/2021 6:18:58 PM	62062
Lead	12	1.0	2.0		mg/Kg	20	8/30/2021 1:09:41 PM	62062
Selenium	1.4	1.2	2.0	J	mg/Kg	20	8/26/2021 7:37:54 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 7:37:54 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.013	0.0026	0.033	J	mg/Kg	1	8/25/2021 12:11:48 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Acenaphthylene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Aniline	ND	3.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Anthracene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Azobenzene	ND	5.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benz(a)anthracene	ND	3.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(a)pyrene	ND	4.7	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(b)fluoranthene	ND	5.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(g,h,i)perylene	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(k)fluoranthene	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzoic acid	ND	6.2	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzyl alcohol	ND	4.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-chloroethoxy)methane	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-chloroethyl)ether	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-chloroisopropyl)ether	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-ethylhexyl)phthalate	ND	11	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Bromophenyl phenyl ether	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Butyl benzyl phthalate	ND	3.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Carbazole	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Chloro-3-methylphenol	ND	4.2	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Chloroaniline	ND	4.9	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Chloronaphthalene	ND	4.7	12	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Chlorophenol	ND	5.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Chlorophenyl phenyl ether	ND	4.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Di-n-butyl phthalate	ND	14	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Di-n-octyl phthalate	ND	6.4	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Dibenz(a,h)anthracene	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Dibenzofuran	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,2-Dichlorobenzene	ND	4.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,3-Dichlorobenzene	ND	3.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,4-Dichlorobenzene	ND	4.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
3,3´-Dichlorobenzidine	ND	7.5	12	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Diethyl phthalate	ND	16	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Dimethyl phthalate	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dichlorophenol	ND	4.1	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dimethylphenol	ND	3.5	15	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4,6-Dinitro-2-methylphenol	ND	4.2	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dinitrophenol	ND	2.5	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dinitrotoluene	ND	6.1	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,6-Dinitrotoluene	ND	5.1	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Fluoranthene	ND	4.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Fluorene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachlorobenzene	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachlorobutadiene	ND	4.7	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachlorocyclopentadiene	ND	5.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachloroethane	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Indeno(1,2,3-cd)pyrene	ND	5.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Isophorone	ND	4.1	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1-Methylnaphthalene	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Methylnaphthalene	ND	4.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Methylphenol	ND	4.2	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
3+4-Methylphenol	ND	4.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
N-Nitrosodi-n-propylamine	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
N-Nitrosodimethylamine	ND	7.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
N-Nitrosodiphenylamine	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Naphthalene	ND	4.7	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Nitroaniline	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
3-Nitroaniline	ND	5.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Nitroaniline	ND	6.4	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Nitrobenzene	ND	4.1	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Nitrophenol	ND	4.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Nitrophenol	ND	4.1	12	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	4.3	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Phenanthrene	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Phenol	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Pyrene	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Pyridine	ND	8.0	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,2,4-Trichlorobenzene	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4,5-Trichlorophenol	ND	3.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4,6-Trichlorophenol	ND	4.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.15	0.010	0.027		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Toluene	0.16	0.0069	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Ethylbenzene	0.95	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Methyl tert-butyl ether (MTBE)	0.86	0.030	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,4-Trimethylbenzene	3.3	0.0076	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,3,5-Trimethylbenzene	0.22	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.021	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Naphthalene	1.3	0.020	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1-Methylnaphthalene	3.8	0.061	0.21		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Methylnaphthalene	3.9	0.050	0.21		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Acetone	ND	0.17	0.80		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromobenzene	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromodichloromethane	ND	0.0068	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromoform	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromomethane	ND	0.089	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Butanone	ND	0.23	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Carbon disulfide	ND	0.022	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Carbon tetrachloride	ND	0.0060	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chlorobenzene	ND	0.0096	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chloroethane	ND	0.020	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chloroform	ND	0.0076	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chloromethane	ND	0.019	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Chlorotoluene	ND	0.0072	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.028	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
cis-1,2-DCE	ND	0.027	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
cis-1,3-Dichloropropene	ND	0.0080	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.023	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Dibromochloromethane	ND	0.0086	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Dibromomethane	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dichlorobenzene	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,3-Dichlorobenzene	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,4-Dichlorobenzene	ND	0.014	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Dichlorodifluoromethane	ND	0.021	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1-Dichloroethane	ND	0.016	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1-Dichloroethene	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dichloropropane	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,3-Dichloropropane	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2,2-Dichloropropane	ND	0.0076	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1-Dichloropropene	ND	0.0065	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Hexachlorobutadiene	ND	0.036	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Hexanone	ND	0.023	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Isopropylbenzene	0.17	0.0099	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
4-Isopropyltoluene	0.089	0.014	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
4-Methyl-2-pentanone	ND	0.062	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Methylene chloride	ND	0.039	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
n-Butylbenzene	0.66	0.014	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
n-Propylbenzene	0.61	0.0087	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
sec-Butylbenzene	0.25	0.044	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Styrene	ND	0.0073	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
tert-Butylbenzene	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0079	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.017	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Tetrachloroethene (PCE)	ND	0.015	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
trans-1,2-DCE	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
trans-1,3-Dichloropropene	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0083	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,4-Trichlorobenzene	ND	0.019	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,1-Trichloroethane	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,2-Trichloroethane	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Trichloroethene (TCE)	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Trichlorofluoromethane	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,3-Trichloropropane	ND	0.023	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646

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Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Xylenes, Total	2.8	0.028	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Surr: Dibromofluoromethane	101		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
Surr: Toluene-d8	103		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
Surr: 4-Bromofluorobenzene	93.9		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	35	1.5	5.4		mg/Kg	2	8/19/2021 3:52:59 AM	B80646
Surr: BFB	101	0	70-130		%Rec	2	8/19/2021 3:52:59 AM	B80646

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	770	4.8	9.7		mg/Kg	1	8/18/2021 12:43:11 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/18/2021 12:43:11 PM	62000
Surr: DNOP	109	0	70-130		%Rec	1	8/18/2021 12:43:11 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:47:00 PM	62062
Barium	290	10	21		mg/Kg	200	8/26/2021 7:42:27 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:47:00 PM	62062
Chromium	15	1.0	2.1		mg/Kg	20	8/27/2021 6:23:31 PM	62062
Lead	13	1.0	2.1		mg/Kg	20	8/30/2021 1:20:09 PM	62062
Selenium	1.4	1.2	2.1	J	mg/Kg	20	8/26/2021 7:47:00 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:47:00 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0069	0.0025	0.031	J	mg/Kg	1	8/25/2021 12:13:59 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Acenaphthylene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Aniline	ND	1.3	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Anthracene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Azobenzene	ND	1.9	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benz(a)anthracene	ND	1.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(a)pyrene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(b)fluoranthene	ND	2.1	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(g,h,i)perylene	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(k)fluoranthene	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzoic acid	ND	2.4	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzyl alcohol	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-chloroethoxy)methane	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-chloroethyl)ether	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-chloroisopropyl)ether	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-ethylhexyl)phthalate	ND	4.2	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Bromophenyl phenyl ether	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Butyl benzyl phthalate	ND	1.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Carbazole	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Chloro-3-methylphenol	ND	1.6	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Chloroaniline	ND	1.9	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Chloronaphthalene	ND	1.8	4.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Chlorophenol	ND	2.1	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Chlorophenyl phenyl ether	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Di-n-butyl phthalate	ND	5.4	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Di-n-octyl phthalate	ND	2.5	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Dibenz(a,h)anthracene	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Dibenzofuran	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,2-Dichlorobenzene	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,3-Dichlorobenzene	ND	1.4	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,4-Dichlorobenzene	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
3,3´-Dichlorobenzidine	ND	2.9	4.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Diethyl phthalate	ND	6.3	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Dimethyl phthalate	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dichlorophenol	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dimethylphenol	ND	1.4	5.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4,6-Dinitro-2-methylphenol	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dinitrophenol	ND	0.97	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dinitrotoluene	ND	2.3	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,6-Dinitrotoluene	ND	2.0	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Fluoranthene	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Fluorene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachlorobenzene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachlorobutadiene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachlorocyclopentadiene	ND	2.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachloroethane	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Indeno(1,2,3-cd)pyrene	ND	2.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Isophorone	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1-Methylnaphthalene	4.7	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Methylnaphthalene	6.6	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Methylphenol	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
3+4-Methylphenol	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
N-Nitrosodi-n-propylamine	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
N-Nitrosodimethylamine	ND	2.9	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
N-Nitrosodiphenylamine	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Naphthalene	2.1	1.8	3.9	JD	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Nitroaniline	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
3-Nitroaniline	ND	2.3	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Nitroaniline	ND	2.5	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Nitrobenzene	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Nitrophenol	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Nitrophenol	ND	1.6	4.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	1.7	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Phenanthrene	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Phenol	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Pyrene	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Pyridine	ND	3.1	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,2,4-Trichlorobenzene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4,5-Trichlorophenol	ND	1.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4,6-Trichlorophenol	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.17	0.0056	0.015		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Toluene	0.27	0.0038	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Ethylbenzene	1.0	0.0071	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Methyl tert-butyl ether (MTBE)	1.4	0.017	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,4-Trimethylbenzene	5.9	0.041	0.29		mg/Kg	10	8/19/2021 6:29:34 PM	R80682
1,3,5-Trimethylbenzene	0.38	0.0066	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0067	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.012	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Naphthalene	2.4	0.011	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1-Methylnaphthalene	6.8	0.34	1.2		mg/Kg	10	8/19/2021 6:29:34 PM	R80682
2-Methylnaphthalene	9.1	0.27	1.2		mg/Kg	10	8/19/2021 6:29:34 PM	R80682
Acetone	ND	0.096	0.44		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromobenzene	ND	0.0062	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromoform	ND	0.0071	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromomethane	ND	0.049	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2-Butanone	ND	0.13	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Carbon tetrachloride	ND	0.0033	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chlorobenzene	ND	0.0053	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chloroethane	ND	0.011	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chloroform	ND	0.0042	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chloromethane	ND	0.010	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2-Chlorotoluene	ND	0.0039	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
cis-1,2-DCE	ND	0.015	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
cis-1,3-Dichloropropene	ND	0.0044	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.013	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Dibromochloromethane	ND	0.0047	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Dibromomethane	ND	0.0068	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dichlorobenzene	ND	0.0061	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,3-Dichlorobenzene	ND	0.0055	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,4-Dichlorobenzene	ND	0.0078	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1-Dichloroethane	ND	0.0085	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1-Dichloroethene	ND	0.0063	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dichloropropane	ND	0.0057	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,3-Dichloropropane	ND	0.0064	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2,2-Dichloropropane	ND	0.0042	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1-Dichloropropene	ND	0.0035	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Hexachlorobutadiene	ND	0.020	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Isopropylbenzene	0.30	0.0054	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
4-Isopropyltoluene	0.18	0.0075	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
4-Methyl-2-pentanone	ND	0.034	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Methylene chloride	ND	0.021	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
n-Butylbenzene	1.5	0.0078	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
n-Propylbenzene	1.3	0.0047	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
sec-Butylbenzene	0.56	0.024	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Styrene	ND	0.0040	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
tert-Butylbenzene	ND	0.0068	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0043	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.0095	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Tetrachloroethene (PCE)	ND	0.0080	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
trans-1,2-DCE	ND	0.0057	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
trans-1,3-Dichloropropene	ND	0.0069	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0045	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,1-Trichloroethane	ND	0.0065	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,2-Trichloroethane	ND	0.0073	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Trichloroethene (TCE)	ND	0.0057	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Trichlorofluoromethane	ND	0.0067	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,3-Trichloropropane	ND	0.012	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0056	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Xylenes, Total	1.9	0.015	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Surr: Dibromofluoromethane	97.7		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
Surr: Toluene-d8	101		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
Surr: 4-Bromofluorobenzene	93.0		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	73	0.81	2.9		mg/Kg	1	8/19/2021 4:50:08 AM	B80646
Surr: BFB	102	0	70-130		%Rec	1	8/19/2021 4:50:08 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1300	49	99		mg/Kg	10	8/19/2021 4:33:59 AM	62016
Motor Oil Range Organics (MRO)	ND	500	500	D	mg/Kg	10	8/19/2021 4:33:59 AM	62016
Surr: DNOP	0	0	70-130	S	%Rec	10	8/19/2021 4:33:59 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.4	0.97	1.9	J	mg/Kg	20	8/26/2021 7:56:06 PM	62063
Barium	200	9.7	19		mg/Kg	200	8/26/2021 7:51:33 PM	62063
Cadmium	ND	9.7	19		mg/Kg	200	8/26/2021 7:51:33 PM	62063
Chromium	11	0.97	1.9		mg/Kg	20	8/27/2021 6:28:04 PM	62063
Lead	10	0.97	1.9		mg/Kg	20	8/30/2021 1:23:38 PM	62063
Selenium	1.3	1.1	1.9	J	mg/Kg	20	8/26/2021 7:56:06 PM	62063
Silver	ND	9.7	19		mg/Kg	200	8/26/2021 7:51:33 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.013	0.0026	0.032	J	mg/Kg	1	8/25/2021 12:16:10 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	8.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Acenaphthylene	ND	8.9	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Aniline	ND	6.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Anthracene	ND	8.9	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Azobenzene	ND	9.9	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benz(a)anthracene	ND	6.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(a)pyrene	ND	9.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(b)fluoranthene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(g,h,i)perylene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(k)fluoranthene	ND	7.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzoic acid	ND	12	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzyl alcohol	ND	8.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-chloroethoxy)methane	ND	7.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-chloroethyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-chloroisopropyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-ethylhexyl)phthalate	ND	21	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Bromophenyl phenyl ether	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Butyl benzyl phthalate	ND	6.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Carbazole	ND	8.7	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Chloro-3-methylphenol	ND	8.3	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Chloroaniline	ND	9.6	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Chloronaphthalene	ND	9.4	25	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Chlorophenol	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Chlorophenyl phenyl ether	ND	8.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	8.7	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Di-n-butyl phthalate	ND	28	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Di-n-octyl phthalate	ND	13	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Dibenz(a,h)anthracene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Dibenzofuran	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,2-Dichlorobenzene	ND	8.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,3-Dichlorobenzene	ND	7.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,4-Dichlorobenzene	ND	8.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
3,3´-Dichlorobenzidine	ND	15	25	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Diethyl phthalate	ND	32	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Dimethyl phthalate	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dichlorophenol	ND	8.0	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dimethylphenol	ND	7.0	30	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4,6-Dinitro-2-methylphenol	ND	8.3	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dinitrophenol	ND	5.0	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dinitrotoluene	ND	12	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,6-Dinitrotoluene	ND	10	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Fluoranthene	ND	8.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Fluorene	ND	8.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachlorobenzene	ND	8.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachlorobutadiene	ND	9.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachlorocyclopentadiene	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachloroethane	ND	8.7	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Indeno(1,2,3-cd)pyrene	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Isophorone	ND	8.1	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1-Methylnaphthalene	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Methylnaphthalene	ND	8.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Methylphenol	ND	8.3	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
3+4-Methylphenol	ND	8.2	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
N-Nitrosodi-n-propylamine	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
N-Nitrosodimethylamine	ND	15	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
N-Nitrosodiphenylamine	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Naphthalene	ND	9.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Nitroaniline	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
3-Nitroaniline	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Nitroaniline	ND	13	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Nitrobenzene	ND	8.1	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Nitrophenol	ND	8.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Nitrophenol	ND	8.1	25	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	8.5	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Phenanthrene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Phenol	ND	7.6	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Pyrene	ND	7.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Pyridine	ND	16	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,2,4-Trichlorobenzene	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4,5-Trichlorophenol	ND	6.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4,6-Trichlorophenol	ND	8.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.066	0.0093	0.024		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Toluene	0.21	0.0062	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Ethylbenzene	0.33	0.012	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Methyl tert-butyl ether (MTBE)	0.38	0.027	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,4-Trimethylbenzene	1.3	0.0068	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,3,5-Trimethylbenzene	0.30	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.019	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Naphthalene	0.25	0.018	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1-Methylnaphthalene	1.6	0.056	0.19		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Methylnaphthalene	0.65	0.045	0.19		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Acetone	ND	0.16	0.73		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromobenzene	ND	0.010	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromodichloromethane	ND	0.0062	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromoform	ND	0.012	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromomethane	ND	0.080	0.15		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Butanone	ND	0.21	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Carbon disulfide	ND	0.020	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Carbon tetrachloride	ND	0.0054	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chlorobenzene	ND	0.0087	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chloroethane	ND	0.018	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chloroform	ND	0.0069	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chloromethane	ND	0.017	0.15		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Chlorotoluene	ND	0.0065	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.025	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
cis-1,2-DCE	ND	0.024	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
cis-1,3-Dichloropropene	ND	0.0072	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.021	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Dibromochloromethane	ND	0.0077	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Dibromomethane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dichlorobenzene	ND	0.010	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,3-Dichlorobenzene	ND	0.0091	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,4-Dichlorobenzene	ND	0.013	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Dichlorodifluoromethane	ND	0.019	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1-Dichloroethane	ND	0.014	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1-Dichloroethene	ND	0.010	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dichloropropane	ND	0.0094	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,3-Dichloropropane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2,2-Dichloropropane	ND	0.0069	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1-Dichloropropene	ND	0.0058	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Hexachlorobutadiene	ND	0.033	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Hexanone	ND	0.021	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Isopropylbenzene	0.043	0.0090	0.048	J	mg/Kg	2	8/19/2021 5:47:17 AM	A80646
4-Isopropyltoluene	0.039	0.012	0.048	J	mg/Kg	2	8/19/2021 5:47:17 AM	A80646
4-Methyl-2-pentanone	ND	0.056	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Methylene chloride	ND	0.035	0.15		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
n-Butylbenzene	0.14	0.013	0.15	J	mg/Kg	2	8/19/2021 5:47:17 AM	A80646
n-Propylbenzene	0.18	0.0078	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
sec-Butylbenzene	0.049	0.040	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Styrene	ND	0.0066	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
tert-Butylbenzene	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0071	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.016	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Tetrachloroethene (PCE)	ND	0.013	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
trans-1,2-DCE	ND	0.0094	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
trans-1,3-Dichloropropene	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0075	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,4-Trichlorobenzene	ND	0.017	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,1-Trichloroethane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,2-Trichloroethane	ND	0.012	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Trichloroethene (TCE)	ND	0.0095	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Trichlorofluoromethane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,3-Trichloropropane	ND	0.020	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0092	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Xylenes, Total	1.3	0.025	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Surr: Dibromofluoromethane	101		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
Surr: Toluene-d8	102		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
Surr: 4-Bromofluorobenzene	96.1		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	24	1.3	4.8		mg/Kg	2	8/19/2021 5:47:17 AM	B80646
Surr: BFB	98.7	0	70-130		%Rec	2	8/19/2021 5:47:17 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	2200	24	49		mg/Kg	5	8/20/2021 5:17:01 PM	62016
Motor Oil Range Organics (MRO)	390	250	250		mg/Kg	5	8/20/2021 5:17:01 PM	62016
Surr: DNOP	131	0	70-130	S	%Rec	5	8/20/2021 5:17:01 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.3	1.0	2.0	J	mg/Kg	20	8/26/2021 8:05:12 PM	62063
Barium	540	10	20		mg/Kg	200	8/26/2021 8:00:39 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:05:12 PM	62063
Chromium	14	1.0	2.0		mg/Kg	20	8/27/2021 6:32:37 PM	62063
Lead	24	1.0	2.0		mg/Kg	20	8/30/2021 1:27:06 PM	62063
Selenium	ND	1.2	2.0		mg/Kg	20	8/26/2021 8:05:12 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:05:12 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.017	0.0027	0.034	J	mg/Kg	1	8/25/2021 12:18:19 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	8.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Acenaphthylene	ND	9.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Aniline	ND	6.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Anthracene	ND	9.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Azobenzene	ND	9.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benz(a)anthracene	ND	6.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(a)pyrene	ND	9.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(b)fluoranthene	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(g,h,i)perylene	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(k)fluoranthene	ND	7.5	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzoic acid	ND	12	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzyl alcohol	ND	8.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-chloroethoxy)methane	ND	7.6	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-chloroethyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-chloroisopropyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-ethylhexyl)phthalate	ND	21	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Bromophenyl phenyl ether	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Butyl benzyl phthalate	ND	6.1	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Carbazole	ND	8.7	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Chloro-3-methylphenol	ND	8.4	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Chloroaniline	ND	9.7	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Chloronaphthalene	ND	9.4	25	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Chlorophenol	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Chlorophenyl phenyl ether	ND	8.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	8.8	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Di-n-butyl phthalate	ND	28	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Di-n-octyl phthalate	ND	13	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Dibenz(a,h)anthracene	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Dibenzofuran	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,2-Dichlorobenzene	ND	8.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,3-Dichlorobenzene	ND	7.1	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,4-Dichlorobenzene	ND	8.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
3,3´-Dichlorobenzidine	ND	15	25	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Diethyl phthalate	ND	32	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Dimethyl phthalate	ND	9.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dichlorophenol	ND	8.1	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dimethylphenol	ND	7.1	30	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4,6-Dinitro-2-methylphenol	ND	8.4	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dinitrophenol	ND	5.0	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dinitrotoluene	ND	12	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,6-Dinitrotoluene	ND	10	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Fluoranthene	ND	8.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Fluorene	ND	8.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachlorobenzene	ND	8.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachlorobutadiene	ND	9.3	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachlorocyclopentadiene	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachloroethane	ND	8.8	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Indeno(1,2,3-cd)pyrene	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Isophorone	ND	8.1	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1-Methylnaphthalene	ND	9.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Methylnaphthalene	ND	8.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Methylphenol	ND	8.4	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
3+4-Methylphenol	ND	8.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
N-Nitrosodi-n-propylamine	ND	9.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
N-Nitrosodimethylamine	ND	15	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
N-Nitrosodiphenylamine	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Naphthalene	ND	9.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Nitroaniline	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
3-Nitroaniline	ND	12	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Nitroaniline	ND	13	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Nitrobenzene	ND	8.2	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Nitrophenol	ND	8.6	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Nitrophenol	ND	8.2	25	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	8.6	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Phenanthrene	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Phenol	ND	7.7	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Pyrene	ND	7.5	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Pyridine	ND	16	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,2,4-Trichlorobenzene	ND	9.1	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4,5-Trichlorophenol	ND	6.3	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4,6-Trichlorophenol	ND	8.6	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.029	0.0098	0.025		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Toluene	0.089	0.0065	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Ethylbenzene	0.12	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Methyl tert-butyl ether (MTBE)	0.47	0.029	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,4-Trimethylbenzene	0.54	0.0072	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,3,5-Trimethylbenzene	0.23	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.020	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Naphthalene	ND	0.019	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1-Methylnaphthalene	1.3	0.058	0.20		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Methylnaphthalene	0.33	0.047	0.20		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Acetone	ND	0.17	0.76		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromobenzene	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromodichloromethane	ND	0.0065	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromoform	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromomethane	ND	0.084	0.15		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Butanone	ND	0.22	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Carbon disulfide	ND	0.021	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Carbon tetrachloride	ND	0.0057	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chlorobenzene	ND	0.0091	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chloroethane	ND	0.019	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chloroform	ND	0.0072	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chloromethane	ND	0.018	0.15		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Chlorotoluene	ND	0.0068	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646

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PQL	Practical Quanitative Limit
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P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.027	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
cis-1,2-DCE	ND	0.025	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
cis-1,3-Dichloropropene	ND	0.0075	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Dibromochloromethane	ND	0.0081	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Dibromomethane	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dichlorobenzene	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,3-Dichlorobenzene	ND	0.0096	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,4-Dichlorobenzene	ND	0.014	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Dichlorodifluoromethane	ND	0.020	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1-Dichloroethane	ND	0.015	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1-Dichloroethene	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dichloropropane	ND	0.0099	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,3-Dichloropropane	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2,2-Dichloropropane	ND	0.0072	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1-Dichloropropene	ND	0.0061	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Hexachlorobutadiene	ND	0.035	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Hexanone	ND	0.022	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Isopropylbenzene	0.014	0.0094	0.051	J	mg/Kg	2	8/19/2021 6:44:29 AM	A80646
4-Isopropyltoluene	0.035	0.013	0.051	J	mg/Kg	2	8/19/2021 6:44:29 AM	A80646
4-Methyl-2-pentanone	ND	0.059	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Methylene chloride	ND	0.037	0.15		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
n-Butylbenzene	0.077	0.014	0.15	J	mg/Kg	2	8/19/2021 6:44:29 AM	A80646
n-Propylbenzene	0.069	0.0082	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
sec-Butylbenzene	ND	0.042	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Styrene	ND	0.0069	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
tert-Butylbenzene	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0075	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.016	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Tetrachloroethene (PCE)	ND	0.014	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
trans-1,2-DCE	ND	0.0098	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
trans-1,3-Dichloropropene	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0079	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,4-Trichlorobenzene	ND	0.018	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,1-Trichloroethane	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,2-Trichloroethane	ND	0.013	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Trichloroethene (TCE)	ND	0.0099	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Trichlorofluoromethane	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646

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E	Value above quantitation range
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0097	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Xylenes, Total	0.56	0.027	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Surr: Dibromofluoromethane	103		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
Surr: 1,2-Dichloroethane-d4	105		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
Surr: Toluene-d8	103		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
Surr: 4-Bromofluorobenzene	96.6		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	14	1.4	5.1		mg/Kg	2	8/19/2021 6:44:29 AM	B80646
Surr: BFB	101	0	70-130		%Rec	2	8/19/2021 6:44:29 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	130	4.9	9.9		mg/Kg	1	8/18/2021 3:47:08 PM	62016
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	8/18/2021 3:47:08 PM	62016
Surr: DNOP	101	0	70-130		%Rec	1	8/18/2021 3:47:08 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:14:18 PM	62063
Barium	270	10	20		mg/Kg	200	8/26/2021 8:09:45 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:14:18 PM	62063
Chromium	17	1.0	2.0		mg/Kg	20	8/27/2021 6:37:10 PM	62063
Lead	11	1.0	2.0		mg/Kg	20	8/30/2021 1:30:35 PM	62063
Selenium	1.5	1.2	2.0	J	mg/Kg	20	8/26/2021 8:14:18 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:14:18 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.010	0.0025	0.032	J	mg/Kg	1	8/25/2021 12:20:29 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Diethyl phthalate	ND	3.2	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0065	0.017		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Toluene	ND	0.0044	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Ethylbenzene	ND	0.0083	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Methyl tert-butyl ether (MTBE)	0.072	0.019	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,4-Trimethylbenzene	0.011	0.0048	0.034	J	mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0076	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0077	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.013	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Naphthalene	ND	0.013	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1-Methylnaphthalene	ND	0.039	0.14		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Methylnaphthalene	ND	0.031	0.14		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Acetone	ND	0.11	0.51		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromobenzene	ND	0.0072	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromodichloromethane	ND	0.0043	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromoform	ND	0.0082	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromomethane	ND	0.056	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Butanone	ND	0.15	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Carbon disulfide	ND	0.014	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Carbon tetrachloride	ND	0.0038	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chlorobenzene	ND	0.0061	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chloroethane	ND	0.013	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chloroform	ND	0.0048	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Chlorotoluene	ND	0.0045	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
cis-1,2-DCE	ND	0.017	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
cis-1,3-Dichloropropene	ND	0.0050	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.015	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Dibromochloromethane	ND	0.0054	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Dibromomethane	ND	0.0079	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dichlorobenzene	ND	0.0070	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,3-Dichlorobenzene	ND	0.0064	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,4-Dichlorobenzene	ND	0.0091	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Dichlorodifluoromethane	ND	0.013	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1-Dichloroethane	ND	0.0099	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1-Dichloroethene	ND	0.0073	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dichloropropane	ND	0.0066	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,3-Dichloropropane	ND	0.0074	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2,2-Dichloropropane	ND	0.0048	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1-Dichloropropene	ND	0.0041	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Hexachlorobutadiene	ND	0.023	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Hexanone	ND	0.015	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Isopropylbenzene	ND	0.0063	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
4-Isopropyltoluene	ND	0.0087	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
4-Methyl-2-pentanone	ND	0.039	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Methylene chloride	ND	0.025	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
n-Butylbenzene	ND	0.0091	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
n-Propylbenzene	ND	0.0055	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
sec-Butylbenzene	ND	0.028	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Styrene	ND	0.0046	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
tert-Butylbenzene	ND	0.0078	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0050	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Tetrachloroethene (PCE)	ND	0.0093	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
trans-1,2-DCE	ND	0.0065	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
trans-1,3-Dichloropropene	ND	0.0079	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0052	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,1-Trichloroethane	ND	0.0075	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,2-Trichloroethane	ND	0.0085	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Trichloroethene (TCE)	ND	0.0066	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Trichlorofluoromethane	ND	0.0077	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,3-Trichloropropane	ND	0.014	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0065	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Xylenes, Total	ND	0.018	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
Surr: Toluene-d8	101		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
Surr: 4-Bromofluorobenzene	92.2		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	1.1	0.94	3.4	J	mg/Kg	1	8/19/2021 7:41:40 AM	B80646
Surr: BFB	93.9	0	70-130		%Rec	1	8/19/2021 7:41:40 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	51	4.9	9.8		mg/Kg	1	8/18/2021 3:58:55 PM	62016
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/18/2021 3:58:55 PM	62016
Surr: DNOP	100	0	70-130		%Rec	1	8/18/2021 3:58:55 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	1.0	2.0	J	mg/Kg	20	8/27/2021 6:59:57 PM	62063
Barium	270	10	20		mg/Kg	200	8/26/2021 8:28:00 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
Chromium	19	1.0	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
Lead	11	1.0	2.0		mg/Kg	20	9/8/2021 10:49:37 AM	62063
Selenium	2.1	1.2	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0089	0.0026	0.032	J	mg/Kg	1	8/25/2021 12:22:38 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Chloroaniline	ND	0.96	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Diethyl phthalate	ND	3.2	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Methylphenol	ND	0.83	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
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ND	Not Detected at the Reporting Limit
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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0070	0.018		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Toluene	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Ethylbenzene	ND	0.0089	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Methyl tert-butyl ether (MTBE)	0.076	0.021	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,4-Trimethylbenzene	ND	0.0052	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0082	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0083	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.014	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Naphthalene	ND	0.014	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1-Methylnaphthalene	0.24	0.042	0.15		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Methylnaphthalene	ND	0.034	0.15		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Acetone	ND	0.12	0.55		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromobenzene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromodichloromethane	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromoform	ND	0.0088	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromomethane	ND	0.061	0.11		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Carbon tetrachloride	ND	0.0041	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chlorobenzene	ND	0.0066	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chloroethane	ND	0.014	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chloroform	ND	0.0052	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Chlorotoluene	ND	0.0049	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.019	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
cis-1,2-DCE	ND	0.018	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
cis-1,3-Dichloropropene	ND	0.0054	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.016	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Dibromochloromethane	ND	0.0059	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Dibromomethane	ND	0.0085	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dichlorobenzene	ND	0.0076	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,3-Dichlorobenzene	ND	0.0069	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,4-Dichlorobenzene	ND	0.0098	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1-Dichloroethene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dichloropropane	ND	0.0071	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,3-Dichloropropane	ND	0.0080	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2,2-Dichloropropane	ND	0.0052	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1-Dichloropropene	ND	0.0044	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Hexachlorobutadiene	ND	0.025	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Isopropylbenzene	ND	0.0068	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
4-Isopropyltoluene	0.055	0.0094	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
4-Methyl-2-pentanone	ND	0.043	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Methylene chloride	ND	0.026	0.11		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
n-Butylbenzene	0.037	0.0098	0.11	J	mg/Kg	1	8/19/2021 8:10:14 AM	A80646
n-Propylbenzene	0.0078	0.0059	0.037	J	mg/Kg	1	8/19/2021 8:10:14 AM	A80646
sec-Butylbenzene	0.044	0.030	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Styrene	ND	0.0050	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
tert-Butylbenzene	ND	0.0085	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0054	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
trans-1,2-DCE	ND	0.0071	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
trans-1,3-Dichloropropene	ND	0.0086	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0057	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,1-Trichloroethane	ND	0.0081	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,2-Trichloroethane	ND	0.0092	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Trichloroethene (TCE)	ND	0.0072	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Trichlorofluoromethane	ND	0.0083	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,3-Trichloropropane	ND	0.015	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0070	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Xylenes, Total	ND	0.019	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Surr: Dibromofluoromethane	103		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
Surr: Toluene-d8	107		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
Surr: 4-Bromofluorobenzene	89.7		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	11	1.0	3.7		mg/Kg	1	8/19/2021 8:10:14 AM	B80646
Surr: BFB	91.0	0	70-130		%Rec	1	8/19/2021 8:10:14 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	65	4.8	9.7		mg/Kg	1	8/20/2021 8:15:21 AM	62016
Motor Oil Range Organics (MRO)	130	49	49		mg/Kg	1	8/20/2021 8:15:21 AM	62016
Surr: DNOP	104	0	70-130		%Rec	1	8/20/2021 8:15:21 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.4	0.97	1.9	J	mg/Kg	20	8/27/2021 7:09:03 PM	62063
Barium	390	9.7	19		mg/Kg	200	8/26/2021 8:37:06 PM	62063
Cadmium	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
Chromium	31	0.97	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
Lead	30	0.97	1.9		mg/Kg	20	9/8/2021 10:54:03 AM	62063
Selenium	2.0	1.1	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
Silver	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.10	0.014	0.17	J	mg/Kg	5	8/25/2021 1:17:06 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Chloronaphthalene	ND	0.93	2.5	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0071	0.018		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Toluene	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Ethylbenzene	ND	0.0090	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.021	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,4-Trimethylbenzene	0.013	0.0052	0.037	J	mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0083	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0084	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.015	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Naphthalene	ND	0.014	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1-Methylnaphthalene	ND	0.042	0.15		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Methylnaphthalene	ND	0.034	0.15		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Acetone	ND	0.12	0.55		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromobenzene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromodichloromethane	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromoform	ND	0.0089	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromomethane	ND	0.061	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Carbon tetrachloride	ND	0.0041	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chlorobenzene	ND	0.0066	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chloroethane	ND	0.014	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chloroform	ND	0.0052	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Chlorotoluene	ND	0.0049	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS7 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.019	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
cis-1,2-DCE	ND	0.018	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
cis-1,3-Dichloropropene	ND	0.0055	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.016	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Dibromochloromethane	ND	0.0059	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Dibromomethane	ND	0.0086	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dichlorobenzene	ND	0.0077	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,3-Dichlorobenzene	ND	0.0070	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,4-Dichlorobenzene	ND	0.0099	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1-Dichloroethene	ND	0.0079	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dichloropropane	ND	0.0072	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,3-Dichloropropane	ND	0.0081	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2,2-Dichloropropane	ND	0.0052	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1-Dichloropropene	ND	0.0045	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Hexachlorobutadiene	ND	0.025	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Isopropylbenzene	ND	0.0068	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
4-Isopropyltoluene	ND	0.0095	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
4-Methyl-2-pentanone	ND	0.043	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
n-Butylbenzene	ND	0.0099	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
n-Propylbenzene	ND	0.0060	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
sec-Butylbenzene	ND	0.030	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Styrene	ND	0.0050	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
tert-Butylbenzene	ND	0.0085	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0054	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
trans-1,2-DCE	ND	0.0071	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
trans-1,3-Dichloropropene	ND	0.0086	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0057	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,1-Trichloroethane	ND	0.0081	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,2-Trichloroethane	ND	0.0092	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Trichloroethene (TCE)	ND	0.0072	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Trichlorofluoromethane	ND	0.0084	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,3-Trichloropropane	ND	0.016	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0070	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Xylenes, Total	ND	0.019	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Surr: Dibromofluoromethane	107		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.9		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
Surr: Toluene-d8	106		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
Surr: 4-Bromofluorobenzene	91.0		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.0	3.7		mg/Kg	1	8/19/2021 3:08:35 PM	R80682
Surr: BFB	95.9	0	70-130		%Rec	1	8/19/2021 3:08:35 PM	R80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	10		mg/Kg	1	8/20/2021 4:27:01 PM	62016
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	8/20/2021 4:27:01 PM	62016
Surr: DNOP	101	0	70-130		%Rec	1	8/20/2021 4:27:01 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.3	1.0	2.0	J	mg/Kg	20	8/27/2021 7:18:09 PM	62063
Barium	370	10	20		mg/Kg	200	8/26/2021 8:46:13 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
Chromium	26	1.0	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
Lead	15	1.0	2.0		mg/Kg	20	9/8/2021 10:58:30 AM	62063
Selenium	2.2	1.2	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.14	0.0026	0.032		mg/Kg	1	8/25/2021 12:35:54 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dichlorophenol	ND	0.80	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.83	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dinitrophenol	ND	0.50	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Methylphenol	ND	0.83	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0055	0.014		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Toluene	0.0069	0.0037	0.029	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Ethylbenzene	0.026	0.0070	0.029	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.016	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,4-Trimethylbenzene	0.16	0.0041	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,3,5-Trimethylbenzene	0.051	0.0065	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0066	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.011	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Naphthalene	0.022	0.011	0.058	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1-Methylnaphthalene	ND	0.033	0.12		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Methylnaphthalene	0.044	0.027	0.12	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Acetone	ND	0.094	0.43		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromobenzene	ND	0.0061	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromoform	ND	0.0069	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromomethane	ND	0.048	0.086		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Butanone	ND	0.12	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Carbon tetrachloride	ND	0.0032	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chlorobenzene	ND	0.0052	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chloroethane	ND	0.011	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chloroform	ND	0.0041	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chloromethane	ND	0.010	0.086		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Chlorotoluene	ND	0.0039	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
cis-1,2-DCE	ND	0.014	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
cis-1,3-Dichloropropene	ND	0.0043	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.012	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Dibromochloromethane	ND	0.0046	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Dibromomethane	ND	0.0067	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dichlorobenzene	ND	0.0060	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,3-Dichlorobenzene	ND	0.0054	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,4-Dichlorobenzene	ND	0.0077	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1-Dichloroethane	ND	0.0084	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1-Dichloroethene	ND	0.0062	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dichloropropane	ND	0.0056	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,3-Dichloropropane	ND	0.0063	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2,2-Dichloropropane	ND	0.0041	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1-Dichloropropene	ND	0.0035	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Hexachlorobutadiene	ND	0.020	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Isopropylbenzene	ND	0.0053	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
4-Isopropyltoluene	ND	0.0074	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
4-Methyl-2-pentanone	ND	0.034	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Methylene chloride	ND	0.021	0.086		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
n-Butylbenzene	0.011	0.0077	0.086	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
n-Propylbenzene	0.018	0.0046	0.029	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
sec-Butylbenzene	ND	0.024	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Styrene	ND	0.0039	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
tert-Butylbenzene	ND	0.0067	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0042	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.0093	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Tetrachloroethene (PCE)	ND	0.0079	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
trans-1,2-DCE	ND	0.0056	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
trans-1,3-Dichloropropene	ND	0.0067	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0044	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,1-Trichloroethane	ND	0.0063	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,2-Trichloroethane	ND	0.0072	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Trichloroethene (TCE)	ND	0.0056	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Trichlorofluoromethane	ND	0.0065	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,3-Trichloropropane	ND	0.012	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0055	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Xylenes, Total	0.13	0.015	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Surr: Dibromofluoromethane	99.2		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
Surr: 1,2-Dichloroethane-d4	98.9		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
Surr: Toluene-d8	105		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
Surr: 4-Bromofluorobenzene	92.3		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	3.8	0.80	2.9		mg/Kg	1	8/19/2021 9:07:36 AM	B80646
Surr: BFB	95.9	0	70-130		%Rec	1	8/19/2021 9:07:36 AM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	140	4.8	9.8		mg/Kg	1	8/20/2021 4:52:01 PM	62016
Motor Oil Range Organics (MRO)	180	49	49		mg/Kg	1	8/20/2021 4:52:01 PM	62016
Surr: DNOP	103	0	70-130		%Rec	1	8/20/2021 4:52:01 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	0.97	1.9	J	mg/Kg	20	8/27/2021 7:27:15 PM	62063
Barium	370	9.7	19		mg/Kg	200	8/26/2021 8:55:20 PM	62063
Cadmium	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
Chromium	25	0.97	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
Lead	31	0.97	1.9		mg/Kg	20	9/8/2021 11:02:57 AM	62063
Selenium	2.1	1.1	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
Silver	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.11	0.0025	0.031		mg/Kg	1	8/25/2021 12:38:04 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Chloronaphthalene	ND	0.93	2.4	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Fluorene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Nitrophenol	ND	0.81	2.4	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0072	0.019		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Toluene	0.0058	0.0048	0.037	J	mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Ethylbenzene	ND	0.0091	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.021	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,4-Trimethylbenzene	0.013	0.0053	0.037	J	mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0084	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0085	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.015	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Naphthalene	ND	0.014	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1-Methylnaphthalene	ND	0.043	0.15		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Methylnaphthalene	ND	0.035	0.15		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Acetone	ND	0.12	0.56		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromobenzene	ND	0.0080	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromodichloromethane	ND	0.0048	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromoform	ND	0.0090	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromomethane	ND	0.062	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Carbon tetrachloride	ND	0.0042	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chlorobenzene	ND	0.0067	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chloroethane	ND	0.014	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chloroform	ND	0.0053	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Chlorotoluene	ND	0.0050	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
cis-1,2-DCE	ND	0.019	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
cis-1,3-Dichloropropene	ND	0.0056	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.016	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Dibromochloromethane	ND	0.0060	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Dibromomethane	ND	0.0088	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dichlorobenzene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,3-Dichlorobenzene	ND	0.0071	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,4-Dichlorobenzene	ND	0.010	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1-Dichloroethene	ND	0.0080	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dichloropropane	ND	0.0073	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,3-Dichloropropane	ND	0.0082	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2,2-Dichloropropane	ND	0.0053	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1-Dichloropropene	ND	0.0045	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Hexachlorobutadiene	ND	0.025	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Isopropylbenzene	ND	0.0070	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
4-Isopropyltoluene	ND	0.0097	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
4-Methyl-2-pentanone	ND	0.044	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
n-Butylbenzene	ND	0.010	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
n-Propylbenzene	ND	0.0061	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
sec-Butylbenzene	ND	0.031	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Styrene	ND	0.0051	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
tert-Butylbenzene	ND	0.0087	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0055	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
trans-1,2-DCE	ND	0.0072	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
trans-1,3-Dichloropropene	ND	0.0088	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0058	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,1-Trichloroethane	ND	0.0083	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,2-Trichloroethane	ND	0.0094	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Trichloroethene (TCE)	ND	0.0073	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Trichlorofluoromethane	ND	0.0085	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,3-Trichloropropane	ND	0.016	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0071	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Xylenes, Total	ND	0.020	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.1		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
Surr: Toluene-d8	105		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
Surr: 4-Bromofluorobenzene	89.3		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.0	3.7		mg/Kg	1	8/19/2021 9:36:11 AM	B80646
Surr: BFB	93.3	0	70-130		%Rec	1	8/19/2021 9:36:11 AM	B80646

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	82	4.8	9.7		mg/Kg	1	8/20/2021 8:39:38 AM	62016
Motor Oil Range Organics (MRO)	56	49	49		mg/Kg	1	8/20/2021 8:39:38 AM	62016
Surr: DNOP	102	0	70-130		%Rec	1	8/20/2021 8:39:38 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.97	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Barium	360	9.7	19		mg/Kg	200	8/30/2021 1:34:04 PM	62063
Cadmium	ND	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Chromium	18	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Lead	24	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Selenium	2.2	0.56	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Silver	ND	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.021	0.0025	0.031	J	mg/Kg	1	8/25/2021 12:40:14 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Acenaphthylene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Anthracene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzoic acid	ND	1.3	10	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.2	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Dimethyl phthalate	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Methylnaphthalene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
N-Nitrosodi-n-propylamine	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.0095	0.025		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Toluene	ND	0.0063	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Ethylbenzene	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Methyl tert-butyl ether (MTBE)	ND	0.028	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,4-Trimethylbenzene	0.0071	0.0069	0.049	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Naphthalene	ND	0.018	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1-Methylnaphthalene	ND	0.056	0.20		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Methylnaphthalene	ND	0.045	0.20		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Acetone	ND	0.16	0.74		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromodichloromethane	ND	0.0063	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromoform	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromomethane	ND	0.082	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Butanone	ND	0.21	0.49		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Carbon disulfide	ND	0.020	0.49		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Carbon tetrachloride	ND	0.0055	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chlorobenzene	ND	0.0089	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chloroethane	ND	0.018	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chloroform	ND	0.0070	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Chlorotoluene	ND	0.0066	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.026	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
cis-1,2-DCE	ND	0.024	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
cis-1,3-Dichloropropene	ND	0.0073	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Dibromochloromethane	ND	0.0079	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Dibromomethane	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dichlorobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,3-Dichlorobenzene	ND	0.0093	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,4-Dichlorobenzene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Dichlorodifluoromethane	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1-Dichloroethane	ND	0.014	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1-Dichloroethene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dichloropropane	ND	0.0096	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,3-Dichloropropane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2,2-Dichloropropane	ND	0.0070	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1-Dichloropropene	ND	0.0059	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Hexachlorobutadiene	ND	0.033	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Hexanone	0.036	0.021	0.49	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
Isopropylbenzene	ND	0.0091	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
4-Isopropyltoluene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
4-Methyl-2-pentanone	ND	0.057	0.49		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
n-Propylbenzene	ND	0.0079	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
sec-Butylbenzene	ND	0.041	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Styrene	ND	0.0067	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
tert-Butylbenzene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,1,2-Tetrachloroethane	ND	0.0072	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,2,2-Tetrachloroethane	0.019	0.016	0.049	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
Tetrachloroethene (PCE)	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
trans-1,2-DCE	ND	0.0095	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
trans-1,3-Dichloropropene	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,3-Trichlorobenzene	ND	0.0076	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,1-Trichloroethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,2-Trichloroethane	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Trichloroethene (TCE)	ND	0.0096	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Trichlorofluoromethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,3-Trichloropropane	ND	0.021	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0094	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Xylenes, Total	ND	0.026	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Surr: Dibromofluoromethane	95.9		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
Surr: 1,2-Dichloroethane-d4	104		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
Surr: Toluene-d8	100		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
Surr: 4-Bromofluorobenzene	108		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	1.6	1.4	4.9	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
Surr: BFB	102	0	70-130		%Rec	1	8/24/2021 1:56:29 AM	62009

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	110	4.8	9.8		mg/Kg	1	8/20/2021 11:32:09 AM	62016
Motor Oil Range Organics (MRO)	86	49	49		mg/Kg	1	8/20/2021 11:32:09 AM	62016
Surr: DNOP	104	0	70-130		%Rec	1	8/20/2021 11:32:09 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.9	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Barium	470	10	21		mg/Kg	200	8/30/2021 2:32:59 PM	62063
Cadmium	ND	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Chromium	21	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Lead	43	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Selenium	2.1	0.60	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Silver	ND	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.21	0.0028	0.036		mg/Kg	1	8/25/2021 12:42:24 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Acenaphthylene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Aniline	ND	0.64	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Anthracene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Azobenzene	ND	0.93	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benz(a)anthracene	ND	0.60	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(a)pyrene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(b)fluoranthene	ND	0.99	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(g,h,i)perylene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(k)fluoranthene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzoic acid	ND	1.2	9.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzyl alcohol	ND	0.76	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-chloroethoxy)methane	ND	0.71	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-chloroethyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.94	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.0	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Bromophenyl phenyl ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Carbazole	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Chloro-3-methylphenol	ND	0.78	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Chloroaniline	ND	0.90	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Chloronaphthalene	ND	0.88	2.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Chlorophenyl phenyl ether	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052

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Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Di-n-butyl phthalate	ND	2.6	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Di-n-octyl phthalate	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Dibenz(a,h)anthracene	ND	0.98	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Dibenzofuran	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,2-Dichlorobenzene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,3-Dichlorobenzene	ND	0.66	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,4-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
3,3´-Dichlorobenzidine	ND	1.4	2.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Diethyl phthalate	ND	3.0	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Dimethyl phthalate	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dichlorophenol	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dimethylphenol	ND	0.66	2.8	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dinitrophenol	ND	0.47	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dinitrotoluene	ND	1.1	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,6-Dinitrotoluene	ND	0.95	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Fluoranthene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Fluorene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachlorobutadiene	ND	0.87	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachloroethane	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Isophorone	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1-Methylnaphthalene	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Methylnaphthalene	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
3+4-Methylphenol	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
N-Nitrosodi-n-propylamine	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
N-Nitrosodiphenylamine	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Naphthalene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Nitroaniline	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Nitroaniline	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Nitrobenzene	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Nitrophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Nitrophenol	ND	0.76	2.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.80	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Phenanthrene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Phenol	ND	0.72	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Pyrene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Pyridine	ND	1.5	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,2,4-Trichlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4,5-Trichlorophenol	ND	0.59	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4,6-Trichlorophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0067	0.017		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Toluene	ND	0.0045	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Ethylbenzene	ND	0.0085	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.020	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,4-Trimethylbenzene	0.027	0.0049	0.035	J	mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,3,5-Trimethylbenzene	0.0085	0.0079	0.035	J	mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0080	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.014	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Naphthalene	ND	0.013	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1-Methylnaphthalene	ND	0.040	0.14		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Methylnaphthalene	ND	0.032	0.14		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Acetone	ND	0.11	0.52		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromobenzene	ND	0.0074	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromodichloromethane	ND	0.0045	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromoform	ND	0.0084	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromomethane	ND	0.058	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Butanone	ND	0.15	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Carbon disulfide	ND	0.014	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Carbon tetrachloride	ND	0.0039	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chlorobenzene	ND	0.0063	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chloroethane	ND	0.013	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chloroform	ND	0.0050	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Chlorotoluene	ND	0.0047	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
cis-1,2-DCE	ND	0.017	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
cis-1,3-Dichloropropene	ND	0.0052	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.015	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Dibromochloromethane	ND	0.0056	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Dibromomethane	ND	0.0082	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dichlorobenzene	ND	0.0073	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,3-Dichlorobenzene	ND	0.0066	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,4-Dichlorobenzene	ND	0.0094	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1-Dichloroethane	ND	0.010	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1-Dichloroethene	ND	0.0075	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dichloropropane	ND	0.0068	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,3-Dichloropropane	ND	0.0077	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2,2-Dichloropropane	ND	0.0050	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1-Dichloropropene	ND	0.0042	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Hexachlorobutadiene	ND	0.024	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Hexanone	ND	0.015	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Isopropylbenzene	ND	0.0065	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
4-Isopropyltoluene	ND	0.0090	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
4-Methyl-2-pentanone	ND	0.041	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Methylene chloride	ND	0.025	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
n-Butylbenzene	ND	0.0094	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
n-Propylbenzene	ND	0.0056	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
sec-Butylbenzene	ND	0.029	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Styrene	ND	0.0048	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
tert-Butylbenzene	ND	0.0081	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0051	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Tetrachloroethene (PCE)	ND	0.0096	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
trans-1,2-DCE	ND	0.0068	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
trans-1,3-Dichloropropene	ND	0.0082	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0054	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,1-Trichloroethane	ND	0.0077	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,2-Trichloroethane	ND	0.0088	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Trichloroethene (TCE)	ND	0.0069	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Trichlorofluoromethane	ND	0.0079	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,3-Trichloropropane	ND	0.015	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0067	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Xylenes, Total	0.035	0.018	0.070	J	mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
Surr: Toluene-d8	102		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
Surr: 4-Bromofluorobenzene	90.6		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.97	3.5		mg/Kg	1	8/19/2021 10:04:46 AM	B80646
Surr: BFB	91.2	0	70-130		%Rec	1	8/19/2021 10:04:46 AM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	9.4	4.8	9.6	J	mg/Kg	1	8/20/2021 9:03:55 AM	62016
Motor Oil Range Organics (MRO)	65	48	48		mg/Kg	1	8/20/2021 9:03:55 AM	62016
Surr: DNOP	105	0	70-130		%Rec	1	8/20/2021 9:03:55 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.9	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Barium	390	9.6	19		mg/Kg	200	8/30/2021 1:41:01 PM	62063
Cadmium	ND	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Chromium	36	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Lead	20	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Selenium	1.6	0.55	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Silver	ND	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.21	0.0026	0.033		mg/Kg	1	8/25/2021 12:44:35 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzoic acid	ND	1.2	10	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0074	0.019		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Toluene	0.0085	0.0050	0.039	J	mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Ethylbenzene	ND	0.0094	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.022	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,4-Trimethylbenzene	0.023	0.0055	0.039	J	mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,3,5-Trimethylbenzene	ND	0.0087	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dichloroethane (EDC)	ND	0.0088	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dibromoethane (EDB)	ND	0.015	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Naphthalene	ND	0.014	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1-Methylnaphthalene	ND	0.044	0.15		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Methylnaphthalene	ND	0.036	0.15		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Acetone	ND	0.13	0.58		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromobenzene	ND	0.0082	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromodichloromethane	ND	0.0049	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromoform	ND	0.0093	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromomethane	ND	0.064	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Butanone	ND	0.17	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Carbon disulfide	ND	0.016	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Carbon tetrachloride	ND	0.0043	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chlorobenzene	ND	0.0070	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chloroethane	ND	0.014	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chloroform	ND	0.0055	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Chlorotoluene	ND	0.0052	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
cis-1,2-DCE	ND	0.019	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
cis-1,3-Dichloropropene	ND	0.0057	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dibromo-3-chloropropane	ND	0.017	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Dibromochloromethane	ND	0.0062	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Dibromomethane	ND	0.0090	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dichlorobenzene	ND	0.0080	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,3-Dichlorobenzene	ND	0.0073	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,4-Dichlorobenzene	ND	0.010	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Dichlorodifluoromethane	ND	0.015	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1-Dichloroethane	ND	0.011	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1-Dichloroethene	ND	0.0083	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dichloropropane	ND	0.0075	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,3-Dichloropropane	ND	0.0085	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2,2-Dichloropropane	ND	0.0055	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1-Dichloropropene	ND	0.0047	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Hexachlorobutadiene	ND	0.026	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Hexanone	ND	0.017	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Isopropylbenzene	ND	0.0072	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
4-Isopropyltoluene	ND	0.010	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
4-Methyl-2-pentanone	ND	0.045	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Methylene chloride	ND	0.028	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
n-Butylbenzene	ND	0.010	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
n-Propylbenzene	ND	0.0062	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
sec-Butylbenzene	ND	0.032	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Styrene	ND	0.0053	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
tert-Butylbenzene	ND	0.0090	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0057	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,2,2-Tetrachloroethane	ND	0.013	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Tetrachloroethene (PCE)	ND	0.011	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
trans-1,2-DCE	ND	0.0075	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
trans-1,3-Dichloropropene	ND	0.0091	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,3-Trichlorobenzene	ND	0.0060	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,4-Trichlorobenzene	ND	0.013	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,1-Trichloroethane	ND	0.0085	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,2-Trichloroethane	ND	0.0097	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Trichloroethene (TCE)	ND	0.0076	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Trichlorofluoromethane	ND	0.0088	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,3-Trichloropropane	ND	0.016	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0074	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Xylenes, Total	ND	0.020	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
Surr: 1,2-Dichloroethane-d4	95.7		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
Surr: Toluene-d8	107		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
Surr: 4-Bromofluorobenzene	91.3		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.1	3.9		mg/Kg	1	8/19/2021 7:27:04 PM	B80682
Surr: BFB	94.7	0	70-130		%Rec	1	8/19/2021 7:27:04 PM	B80682

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J	Analyte detected below quantitation limits
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	46000	240	490		mg/Kg	50	8/19/2021 12:26:12 PM	62016
Motor Oil Range Organics (MRO)	9500	2400	2400		mg/Kg	50	8/19/2021 12:26:12 PM	62016
Surr: DNOP	0	0	70-130	S	%Rec	50	8/19/2021 12:26:12 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.8	0.49	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
Barium	310	9.8	20		mg/Kg	200	8/30/2021 1:44:30 PM	62063
Cadmium	ND	0.49	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
Chromium	73	9.8	20		mg/Kg	200	8/30/2021 1:44:30 PM	62063
Lead	84	9.8	20		mg/Kg	200	8/30/2021 1:44:30 PM	62063
Selenium	1.8	0.56	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
Silver	ND	0.49	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.12	0.0027	0.034		mg/Kg	1	8/25/2021 12:46:46 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Acenaphthylene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Aniline	ND	170	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Anthracene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Azobenzene	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benz(a)anthracene	ND	160	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(a)pyrene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(b)fluoranthene	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(g,h,i)perylene	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(k)fluoranthene	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzoic acid	ND	310	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzyl alcohol	ND	200	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-chloroethoxy)methane	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-chloroethyl)ether	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-chloroisopropyl)ether	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-ethylhexyl)phthalate	ND	540	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Bromophenyl phenyl ether	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Butyl benzyl phthalate	ND	150	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Carbazole	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Chloro-3-methylphenol	ND	210	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Chloroaniline	ND	240	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Chloronaphthalene	ND	240	620	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Chlorophenol	ND	270	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Chlorophenyl phenyl ether	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Di-n-butyl phthalate	ND	690	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Di-n-octyl phthalate	ND	320	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Dibenz(a,h)anthracene	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Dibenzofuran	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,2-Dichlorobenzene	ND	200	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,3-Dichlorobenzene	ND	180	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,4-Dichlorobenzene	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
3,3´-Dichlorobenzidine	ND	370	620	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Diethyl phthalate	ND	810	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Dimethyl phthalate	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dichlorophenol	ND	200	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dimethylphenol	ND	180	750	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4,6-Dinitro-2-methylphenol	ND	210	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dinitrophenol	ND	120	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dinitrotoluene	ND	300	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,6-Dinitrotoluene	ND	250	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Fluoranthene	ND	200	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Fluorene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachlorobenzene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachlorobutadiene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachlorocyclopentadiene	ND	280	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachloroethane	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Indeno(1,2,3-cd)pyrene	ND	290	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Isophorone	ND	200	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1-Methylnaphthalene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Methylnaphthalene	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Methylphenol	ND	210	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
3+4-Methylphenol	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
N-Nitrosodi-n-propylamine	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
N-Nitrosodimethylamine	ND	370	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
N-Nitrosodiphenylamine	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Naphthalene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Nitroaniline	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
3-Nitroaniline	ND	290	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Nitroaniline	ND	320	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Nitrobenzene	ND	200	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Nitrophenol	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Nitrophenol	ND	200	620	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	210	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Phenanthrene	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Phenol	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Pyrene	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Pyridine	ND	400	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,2,4-Trichlorobenzene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4,5-Trichlorophenol	ND	160	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4,6-Trichlorophenol	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.32	0.033	0.086		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Toluene	ND	0.022	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Ethylbenzene	0.84	0.042	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.098	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,4-Trimethylbenzene	0.89	0.024	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,3,5-Trimethylbenzene	0.053	0.039	0.17	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dichloroethane (EDC)	ND	0.039	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dibromoethane (EDB)	ND	0.068	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Naphthalene	ND	0.064	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1-Methylnaphthalene	5.6	0.20	0.69		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Methylnaphthalene	0.46	0.16	0.69	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Acetone	ND	0.56	2.6		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromobenzene	ND	0.037	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromodichloromethane	ND	0.022	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromoform	ND	0.042	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromomethane	ND	0.29	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Butanone	ND	0.75	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Carbon disulfide	ND	0.071	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Carbon tetrachloride	ND	0.019	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chlorobenzene	ND	0.031	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chloroethane	ND	0.065	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chloroform	ND	0.025	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chloromethane	ND	0.061	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Chlorotoluene	ND	0.023	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.091	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
cis-1,2-DCE	ND	0.086	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
cis-1,3-Dichloropropene	ND	0.026	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dibromo-3-chloropropane	ND	0.075	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Dibromochloromethane	ND	0.028	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Dibromomethane	ND	0.040	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dichlorobenzene	ND	0.036	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,3-Dichlorobenzene	ND	0.033	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,4-Dichlorobenzene	ND	0.046	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Dichlorodifluoromethane	ND	0.067	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1-Dichloroethane	ND	0.050	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1-Dichloroethene	ND	0.037	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dichloropropane	ND	0.034	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,3-Dichloropropane	ND	0.038	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2,2-Dichloropropane	ND	0.025	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1-Dichloropropene	ND	0.021	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Hexachlorobutadiene	ND	0.12	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Hexanone	ND	0.076	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Isopropylbenzene	0.033	0.032	0.17	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
4-Isopropyltoluene	ND	0.045	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
4-Methyl-2-pentanone	ND	0.20	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Methylene chloride	ND	0.13	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
n-Butylbenzene	ND	0.046	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
n-Propylbenzene	0.064	0.028	0.17	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
sec-Butylbenzene	ND	0.14	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Styrene	ND	0.024	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
tert-Butylbenzene	ND	0.040	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,1,2-Tetrachloroethane	ND	0.025	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,2,2-Tetrachloroethane	ND	0.056	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Tetrachloroethene (PCE)	ND	0.047	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
trans-1,2-DCE	ND	0.033	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
trans-1,3-Dichloropropene	ND	0.041	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,3-Trichlorobenzene	ND	0.027	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,4-Trichlorobenzene	ND	0.060	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,1-Trichloroethane	ND	0.038	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,2-Trichloroethane	ND	0.043	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Trichloroethene (TCE)	ND	0.034	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Trichlorofluoromethane	ND	0.039	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,3-Trichloropropane	ND	0.073	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.033	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Xylenes, Total	1.1	0.091	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Surr: Dibromofluoromethane	100		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
Surr: Toluene-d8	105		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
Surr: 4-Bromofluorobenzene	89.6		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	34	4.8	17		mg/Kg	5	8/19/2021 9:21:37 PM	B80682
Surr: BFB	96.6	0	70-130		%Rec	5	8/19/2021 9:21:37 PM	B80682

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	710	97	200		mg/Kg	20	8/19/2021 11:15:16 AM	62016
Motor Oil Range Organics (MRO)	2200	980	980		mg/Kg	20	8/19/2021 11:15:16 AM	62016
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 11:15:16 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.0	0.50	1.0	J	mg/Kg	10	8/27/2021 3:43:24 PM	62063
Barium	270	10	20		mg/Kg	200	8/30/2021 1:47:58 PM	62063
Cadmium	ND	0.50	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
Chromium	6.0	0.50	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
Lead	ND	10	20		mg/Kg	200	8/27/2021 3:38:51 PM	62063
Selenium	3.5	0.58	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.012	0.0026	0.033	J	mg/Kg	1	8/25/2021 12:48:56 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Diethyl phthalate	ND	3.2	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.34	0.0060	0.016		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Toluene	0.066	0.0040	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Ethylbenzene	0.64	0.0076	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Methyl tert-butyl ether (MTBE)	0.071	0.018	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,4-Trimethylbenzene	1.2	0.0044	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,3,5-Trimethylbenzene	0.32	0.0070	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dichloroethane (EDC)	ND	0.0071	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Naphthalene	0.076	0.012	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1-Methylnaphthalene	ND	0.036	0.12		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Methylnaphthalene	0.055	0.029	0.12	J	mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Acetone	ND	0.10	0.47		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromobenzene	ND	0.0066	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromodichloromethane	ND	0.0040	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromoform	ND	0.0075	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromomethane	ND	0.052	0.094		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Butanone	ND	0.14	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Carbon tetrachloride	ND	0.0035	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chlorobenzene	ND	0.0056	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chloroethane	ND	0.012	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chloroform	ND	0.0044	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chloromethane	ND	0.011	0.094		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Chlorotoluene	ND	0.0042	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682

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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dibromo-3-chloropropane	ND	0.013	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Dibromochloromethane	ND	0.0050	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Dibromomethane	ND	0.0073	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dichlorobenzene	ND	0.0065	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,3-Dichlorobenzene	ND	0.0059	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,4-Dichlorobenzene	ND	0.0084	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1-Dichloroethane	ND	0.0091	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1-Dichloroethene	ND	0.0067	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dichloropropane	ND	0.0061	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,3-Dichloropropane	ND	0.0069	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2,2-Dichloropropane	ND	0.0044	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1-Dichloropropene	ND	0.0038	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Hexachlorobutadiene	ND	0.021	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Hexanone	ND	0.014	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Isopropylbenzene	0.035	0.0058	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
4-Isopropyltoluene	ND	0.0080	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Methylene chloride	ND	0.023	0.094		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
n-Butylbenzene	0.037	0.0084	0.094	J	mg/Kg	1	8/19/2021 11:16:14 PM	A80682
n-Propylbenzene	0.19	0.0050	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
sec-Butylbenzene	ND	0.026	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Styrene	ND	0.0043	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
tert-Butylbenzene	ND	0.0072	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0046	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,2,2-Tetrachloroethane	ND	0.010	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Tetrachloroethene (PCE)	ND	0.0086	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
trans-1,2-DCE	ND	0.0060	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
trans-1,3-Dichloropropene	ND	0.0073	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,3-Trichlorobenzene	ND	0.0048	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,1-Trichloroethane	ND	0.0069	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,2-Trichloroethane	ND	0.0078	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Trichloroethene (TCE)	ND	0.0061	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Trichlorofluoromethane	ND	0.0071	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,3-Trichloropropane	ND	0.013	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0060	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Xylenes, Total	2.2	0.016	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Surr: Dibromofluoromethane	95.9		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
Surr: 1,2-Dichloroethane-d4	96.5		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
Surr: Toluene-d8	106		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
Surr: 4-Bromofluorobenzene	92.6		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	55	0.87	3.1		mg/Kg	1	8/19/2021 11:16:14 PM	B80682
Surr: BFB	95.6	0	70-130		%Rec	1	8/19/2021 11:16:14 PM	B80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	18000	230	460		mg/Kg	50	8/20/2021 6:46:28 PM	62016
Motor Oil Range Organics (MRO)	ND	2300	2300	D	mg/Kg	50	8/20/2021 6:46:28 PM	62016
Surr: DNOP	0	0	70-130	S	%Rec	50	8/20/2021 6:46:28 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Barium	390	10	20		mg/Kg	200	8/30/2021 1:51:25 PM	62063
Cadmium	ND	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Chromium	16	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Lead	14	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Selenium	2.0	0.59	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Silver	ND	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.010	0.0027	0.034	J	mg/Kg	1	8/25/2021 12:51:06 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	89	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Acenaphthylene	ND	90	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Aniline	ND	69	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Anthracene	ND	90	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Azobenzene	ND	99	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benz(a)anthracene	ND	64	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(a)pyrene	ND	94	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(b)fluoranthene	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(g,h,i)perylene	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(k)fluoranthene	ND	75	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzoic acid	ND	120	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzyl alcohol	ND	81	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-chloroethoxy)methane	ND	76	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-chloroethyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-chloroisopropyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-ethylhexyl)phthalate	ND	210	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Bromophenyl phenyl ether	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Butyl benzyl phthalate	ND	60	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Carbazole	ND	87	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Chloro-3-methylphenol	ND	84	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Chloroaniline	ND	97	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Chloronaphthalene	ND	94	250	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Chlorophenol	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Chlorophenyl phenyl ether	ND	84	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	88	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Di-n-butyl phthalate	ND	280	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Di-n-octyl phthalate	ND	130	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Dibenz(a,h)anthracene	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Dibenzofuran	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,2-Dichlorobenzene	ND	80	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,3-Dichlorobenzene	ND	71	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,4-Dichlorobenzene	ND	84	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
3,3´-Dichlorobenzidine	ND	150	250	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Diethyl phthalate	ND	320	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Dimethyl phthalate	ND	92	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dichlorophenol	ND	81	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dimethylphenol	ND	71	300	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4,6-Dinitro-2-methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dinitrophenol	ND	50	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dinitrotoluene	ND	120	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,6-Dinitrotoluene	ND	100	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Fluoranthene	ND	80	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Fluorene	ND	89	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachlorobenzene	ND	88	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachlorobutadiene	ND	93	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachlorocyclopentadiene	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachloroethane	ND	88	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Indeno(1,2,3-cd)pyrene	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Isophorone	ND	81	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1-Methylnaphthalene	ND	91	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Methylnaphthalene	140	82	200	JD	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
3+4-Methylphenol	ND	82	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
N-Nitrosodi-n-propylamine	ND	92	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
N-Nitrosodimethylamine	ND	150	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
N-Nitrosodiphenylamine	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Naphthalene	ND	94	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Nitroaniline	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
3-Nitroaniline	ND	120	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Nitroaniline	ND	130	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Nitrobenzene	ND	82	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Nitrophenol	ND	86	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Nitrophenol	ND	82	250	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	86	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Phenanthrene	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Phenol	ND	77	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Pyrene	ND	75	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Pyridine	ND	160	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,2,4-Trichlorobenzene	ND	91	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4,5-Trichlorophenol	ND	63	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4,6-Trichlorophenol	ND	86	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.7	0.013	0.033		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Toluene	0.26	0.0084	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Ethylbenzene	32	0.40	1.6		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
Methyl tert-butyl ether (MTBE)	12	0.037	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,4-Trimethylbenzene	33	0.23	1.6		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
1,3,5-Trimethylbenzene	3.5	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.026	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Naphthalene	39	0.61	3.3		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
1-Methylnaphthalene	42	1.9	6.5		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
2-Methylnaphthalene	71	1.5	6.5		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
Acetone	ND	0.21	0.98		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromobenzene	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromodichloromethane	ND	0.0083	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromoform	ND	0.016	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromomethane	ND	0.11	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2-Butanone	ND	0.28	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Carbon disulfide	ND	0.027	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Carbon tetrachloride	ND	0.0073	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chlorobenzene	ND	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chloroethane	ND	0.024	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chloroform	ND	0.0092	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chloromethane	ND	0.023	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2-Chlorotoluene	ND	0.0087	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.034	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
cis-1,2-DCE	ND	0.032	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
cis-1,3-Dichloropropene	ND	0.0097	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.028	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Dibromochloromethane	ND	0.010	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Dibromomethane	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dichlorobenzene	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,3-Dichlorobenzene	ND	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,4-Dichlorobenzene	ND	0.017	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Dichlorodifluoromethane	ND	0.025	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1-Dichloroethane	ND	0.019	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1-Dichloroethene	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dichloropropane	ND	0.013	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,3-Dichloropropane	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2,2-Dichloropropane	ND	0.0093	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1-Dichloropropene	ND	0.0079	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Hexachlorobutadiene	ND	0.044	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2-Hexanone	ND	0.028	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Isopropylbenzene	4.0	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
4-Isopropyltoluene	2.2	0.017	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
4-Methyl-2-pentanone	ND	0.076	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Methylene chloride	ND	0.047	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
n-Butylbenzene	5.9	0.017	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
n-Propylbenzene	15	0.26	1.6		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
sec-Butylbenzene	3.6	0.054	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Styrene	ND	0.0089	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
tert-Butylbenzene	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0096	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.021	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Tetrachloroethene (PCE)	ND	0.018	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
trans-1,2-DCE	ND	0.013	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
trans-1,3-Dichloropropene	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,3-Trichlorobenzene	ND	0.010	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,4-Trichlorobenzene	ND	0.023	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,1-Trichloroethane	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,2-Trichloroethane	ND	0.016	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Trichloroethene (TCE)	ND	0.013	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Trichlorofluoromethane	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,3-Trichloropropane	ND	0.027	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682

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Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Xylenes, Total	19	0.86	3.3		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
Surr: Dibromofluoromethane	83.1		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
Surr: 1,2-Dichloroethane-d4	87.1		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
Surr: Toluene-d8	99.8		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
Surr: 4-Bromofluorobenzene	96.6		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	670	45	160		mg/Kg	50	8/24/2021 3:44:34 AM	G80737
Surr: BFB	113	0	70-130		%Rec	50	8/24/2021 3:44:34 AM	G80737

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	9.9		mg/Kg	1	8/18/2021 4:10:47 PM	62016
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	8/18/2021 4:10:47 PM	62016
Surr: DNOP	119	0	70-130		%Rec	1	8/18/2021 4:10:47 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.93	0.50	1.0	J	mg/Kg	10	8/27/2021 4:10:46 PM	62063
Barium	320	10	20		mg/Kg	200	8/30/2021 2:05:19 PM	62063
Cadmium	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Chromium	21	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Lead	13	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Selenium	2.2	0.58	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0086	0.0027	0.034	J	mg/Kg	1	8/25/2021 12:53:16 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.084	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Acenaphthylene	ND	0.085	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Aniline	ND	0.065	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Anthracene	ND	0.085	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Azobenzene	ND	0.094	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benz(a)anthracene	ND	0.061	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(a)pyrene	ND	0.089	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(b)fluoranthene	ND	0.10	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(g,h,i)perylene	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(k)fluoranthene	ND	0.071	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzoic acid	ND	0.12	0.94		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzyl alcohol	ND	0.077	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-chloroethoxy)methane	ND	0.072	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-chloroethyl)ether	ND	0.099	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-chloroisopropyl)ether	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-ethylhexyl)phthalate	ND	0.20	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Bromophenyl phenyl ether	ND	0.098	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Butyl benzyl phthalate	ND	0.057	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Carbazole	ND	0.083	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Chloro-3-methylphenol	ND	0.079	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Chloroaniline	ND	0.092	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Chloronaphthalene	ND	0.089	0.24		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Chlorophenyl phenyl ether	ND	0.080	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082

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Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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J	Analyte detected below quantitation limits
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.083	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Di-n-butyl phthalate	0.32	0.26	0.38	J	mg/Kg	1	8/26/2021 10:55:51 AM	62082
Di-n-octyl phthalate	ND	0.12	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Dibenz(a,h)anthracene	ND	0.099	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Dibenzofuran	ND	0.098	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,2-Dichlorobenzene	ND	0.076	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,3-Dichlorobenzene	ND	0.067	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,4-Dichlorobenzene	ND	0.080	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
3,3´-Dichlorobenzidine	ND	0.14	0.24		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Diethyl phthalate	ND	0.31	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Dimethyl phthalate	ND	0.087	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dichlorophenol	ND	0.077	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dimethylphenol	ND	0.067	0.28		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4,6-Dinitro-2-methylphenol	ND	0.079	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dinitrophenol	ND	0.047	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,6-Dinitrotoluene	ND	0.096	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Fluoranthene	ND	0.076	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Fluorene	ND	0.084	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachlorobenzene	ND	0.084	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachlorobutadiene	ND	0.088	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachloroethane	ND	0.083	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Isophorone	ND	0.077	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1-Methylnaphthalene	ND	0.087	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Methylnaphthalene	ND	0.078	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Methylphenol	ND	0.079	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
3+4-Methylphenol	ND	0.078	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
N-Nitrosodi-n-propylamine	ND	0.087	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
N-Nitrosodiphenylamine	ND	0.098	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Naphthalene	ND	0.089	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Nitroaniline	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Nitroaniline	ND	0.12	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Nitrobenzene	ND	0.077	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Nitrophenol	ND	0.081	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Nitrophenol	ND	0.077	0.24		mg/Kg	1	8/26/2021 10:55:51 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.081	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Phenanthrene	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Phenol	ND	0.073	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Pyrene	ND	0.071	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Pyridine	ND	0.15	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,2,4-Trichlorobenzene	ND	0.086	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4,5-Trichlorophenol	ND	0.060	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4,6-Trichlorophenol	ND	0.081	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Surr: 2-Fluorophenol	40.8		20.3-74.1		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: Phenol-d5	49.1		23.1-92.7		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: 2,4,6-Tribromophenol	63.8		17.3-122		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: Nitrobenzene-d5	30.4		24.7-73.2		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: 2-Fluorobiphenyl	40.3		21.5-90.1		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: 4-Terphenyl-d14	89.7		15-140		%Rec	1	8/26/2021 10:55:51 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.57	0.0050	0.013		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Toluene	ND	0.0034	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Ethylbenzene	0.15	0.0063	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Methyl tert-butyl ether (MTBE)	1.4	0.015	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0037	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,3,5-Trimethylbenzene	ND	0.0058	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.0059	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.010	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Naphthalene	0.015	0.0097	0.052	J	mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1-Methylnaphthalene	ND	0.030	0.10		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Methylnaphthalene	ND	0.024	0.10		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Acetone	ND	0.085	0.39		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromobenzene	ND	0.0055	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromodichloromethane	ND	0.0033	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromoform	ND	0.0063	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromomethane	ND	0.043	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Butanone	ND	0.11	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Carbon disulfide	ND	0.011	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Carbon tetrachloride	ND	0.0029	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chlorobenzene	ND	0.0047	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chloroethane	ND	0.0097	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chloroform	ND	0.0037	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chloromethane	ND	0.0091	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Chlorotoluene	ND	0.0035	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682

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Qualifiers:

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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
cis-1,2-DCE	ND	0.013	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
cis-1,3-Dichloropropene	ND	0.0039	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.011	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Dibromochloromethane	ND	0.0042	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Dibromomethane	ND	0.0061	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dichlorobenzene	ND	0.0054	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,3-Dichlorobenzene	ND	0.0049	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,4-Dichlorobenzene	ND	0.0070	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Dichlorodifluoromethane	ND	0.010	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1-Dichloroethane	ND	0.0076	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1-Dichloroethene	ND	0.0056	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dichloropropane	ND	0.0051	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,3-Dichloropropane	ND	0.0057	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2,2-Dichloropropane	ND	0.0037	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1-Dichloropropene	ND	0.0031	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Hexachlorobutadiene	ND	0.018	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Hexanone	ND	0.011	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Isopropylbenzene	0.012	0.0048	0.026	J	mg/Kg	1	8/20/2021 3:05:05 AM	A80682
4-Isopropyltoluene	ND	0.0067	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
4-Methyl-2-pentanone	ND	0.030	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Methylene chloride	ND	0.019	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
n-Butylbenzene	ND	0.0070	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
n-Propylbenzene	0.034	0.0042	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
sec-Butylbenzene	ND	0.021	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Styrene	ND	0.0036	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
tert-Butylbenzene	ND	0.0060	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0038	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.0084	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Tetrachloroethene (PCE)	ND	0.0071	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
trans-1,2-DCE	ND	0.0050	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
trans-1,3-Dichloropropene	ND	0.0061	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0040	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,4-Trichlorobenzene	ND	0.0091	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,1-Trichloroethane	ND	0.0057	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,2-Trichloroethane	ND	0.0065	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Trichloroethene (TCE)	ND	0.0051	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Trichlorofluoromethane	ND	0.0059	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,3-Trichloropropane	ND	0.011	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0050	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Xylenes, Total	ND	0.014	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
Surr: 1,2-Dichloroethane-d4	103		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
Surr: Toluene-d8	106		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
Surr: 4-Bromofluorobenzene	90.4		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	6.6	0.72	2.6		mg/Kg	1	8/20/2021 3:05:05 AM	B80682
Surr: BFB	96.3	0	70-130		%Rec	1	8/20/2021 3:05:05 AM	B80682

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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	7600	98	200		mg/Kg	20	8/19/2021 8:29:40 AM	62016
Motor Oil Range Organics (MRO)	ND	990	990	D	mg/Kg	20	8/19/2021 8:29:40 AM	62016
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 8:29:40 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Barium	330	10	20		mg/Kg	200	8/30/2021 2:08:47 PM	62063
Cadmium	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Chromium	23	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Lead	65	10	20		mg/Kg	200	8/27/2021 4:15:19 PM	62063
Selenium	1.8	0.57	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.030	0.0025	0.031	J	mg/Kg	1	8/25/2021 12:59:43 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	89	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Acenaphthylene	ND	90	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Aniline	ND	69	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Anthracene	ND	90	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Azobenzene	ND	99	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benz(a)anthracene	ND	64	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(a)pyrene	ND	94	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(b)fluoranthene	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(g,h,i)perylene	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(k)fluoranthene	ND	75	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzoic acid	ND	120	990	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzyl alcohol	ND	81	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-chloroethoxy)methane	ND	76	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-chloroethyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-chloroisopropyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-ethylhexyl)phthalate	ND	210	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Bromophenyl phenyl ether	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Butyl benzyl phthalate	ND	60	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Carbazole	ND	87	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Chloro-3-methylphenol	ND	84	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Chloroaniline	ND	97	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Chloronaphthalene	ND	94	250	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Chlorophenol	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Chlorophenyl phenyl ether	ND	84	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	88	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Di-n-butyl phthalate	ND	280	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Di-n-octyl phthalate	ND	130	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Dibenz(a,h)anthracene	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Dibenzofuran	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,2-Dichlorobenzene	ND	80	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,3-Dichlorobenzene	ND	71	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,4-Dichlorobenzene	ND	84	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
3,3´-Dichlorobenzidine	ND	150	250	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Diethyl phthalate	ND	320	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Dimethyl phthalate	ND	92	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dichlorophenol	ND	81	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dimethylphenol	ND	71	300	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4,6-Dinitro-2-methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dinitrophenol	ND	50	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dinitrotoluene	ND	120	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,6-Dinitrotoluene	ND	100	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Fluoranthene	ND	80	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Fluorene	ND	89	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachlorobenzene	ND	88	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachlorobutadiene	ND	93	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachlorocyclopentadiene	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachloroethane	ND	88	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Indeno(1,2,3-cd)pyrene	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Isophorone	ND	81	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1-Methylnaphthalene	ND	91	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Methylnaphthalene	ND	82	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
3+4-Methylphenol	ND	82	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
N-Nitrosodi-n-propylamine	ND	92	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
N-Nitrosodimethylamine	ND	150	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
N-Nitrosodiphenylamine	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Naphthalene	ND	94	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Nitroaniline	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
3-Nitroaniline	ND	120	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Nitroaniline	ND	130	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Nitrobenzene	ND	81	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Nitrophenol	ND	86	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Nitrophenol	ND	82	250	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	86	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Phenanthrene	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Phenol	ND	77	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Pyrene	ND	75	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Pyridine	ND	160	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,2,4-Trichlorobenzene	ND	91	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4,5-Trichlorophenol	ND	63	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4,6-Trichlorophenol	ND	86	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.0	0.0097	0.025		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Toluene	17	0.16	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Ethylbenzene	13	0.31	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Methyl tert-butyl ether (MTBE)	0.052	0.028	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,4-Trimethylbenzene	41	0.18	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
1,3,5-Trimethylbenzene	14	0.28	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Naphthalene	10	0.47	2.5		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
1-Methylnaphthalene	5.9	1.4	5.0		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
2-Methylnaphthalene	11	1.2	5.0		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Acetone	ND	0.16	0.75		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682

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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
cis-1,3-Dichloropropene	ND	0.0075	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,3-Dichlorobenzene	ND	0.0095	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dichloropropane	ND	0.0098	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1-Dichloropropene	ND	0.0061	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Isopropylbenzene	1.4	0.0093	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
4-Isopropyltoluene	0.37	0.013	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
4-Methyl-2-pentanone	ND	0.059	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
n-Butylbenzene	1.5	0.013	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
n-Propylbenzene	4.9	0.0081	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
sec-Butylbenzene	0.55	0.041	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0074	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0078	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0096	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Xylenes, Total	59	0.66	2.5		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Surr: Dibromofluoromethane	88.3		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
Surr: 1,2-Dichloroethane-d4	91.6		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
Surr: Toluene-d8	99.1		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
Surr: 4-Bromofluorobenzene	84.4		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	420	35	130		mg/Kg	50	8/24/2021 4:11:39 AM	G80737
Surr: BFB	108	0	70-130		%Rec	50	8/24/2021 4:11:39 AM	G80737

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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	16	4.6	9.4		mg/Kg	1	8/24/2021 4:20:10 PM	62016
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/24/2021 4:20:10 PM	62016
Surr: DNOP	121	0	70-130		%Rec	1	8/24/2021 4:20:10 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.0	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Barium	320	9.6	19		mg/Kg	200	8/30/2021 2:12:14 PM	62063
Cadmium	ND	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Chromium	22	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Lead	16	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Selenium	2.1	0.55	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Silver	ND	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.043	0.0028	0.036		mg/Kg	1	8/25/2021 1:01:53 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Acenaphthylene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Anthracene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(g,h,i)perylene	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(k)fluoranthene	ND	0.73	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-chloroisopropyl)ether	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Butyl benzyl phthalate	ND	0.59	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Chloronaphthalene	ND	0.93	2.4	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Dimethyl phthalate	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Fluorene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachloroethane	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
N-Nitrosodi-n-propylamine	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Nitrophenol	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Phenol	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.0059	0.015		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Toluene	0.0043	0.0039	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Ethylbenzene	ND	0.0075	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Methyl tert-butyl ether (MTBE)	ND	0.017	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,4-Trimethylbenzene	0.019	0.0043	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,3,5-Trimethylbenzene	ND	0.0069	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dichloroethane (EDC)	ND	0.0070	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Naphthalene	ND	0.011	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1-Methylnaphthalene	ND	0.035	0.12		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Methylnaphthalene	ND	0.028	0.12		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Acetone	ND	0.10	0.46		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromobenzene	ND	0.0065	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromodichloromethane	0.0053	0.0039	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromoform	ND	0.0074	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromomethane	ND	0.051	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Butanone	0.13	0.13	0.31	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Carbon tetrachloride	ND	0.0034	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chlorobenzene	ND	0.0055	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chloroethane	ND	0.011	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chloroform	ND	0.0043	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chloromethane	ND	0.011	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Chlorotoluene	ND	0.0041	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dibromo-3-chloropropane	ND	0.013	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Dibromochloromethane	ND	0.0049	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Dibromomethane	ND	0.0072	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dichlorobenzene	ND	0.0064	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,3-Dichlorobenzene	ND	0.0058	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,4-Dichlorobenzene	ND	0.0082	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1-Dichloroethane	ND	0.0089	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1-Dichloroethene	ND	0.0066	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dichloropropane	ND	0.0060	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,3-Dichloropropane	ND	0.0067	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2,2-Dichloropropane	ND	0.0044	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1-Dichloropropene	ND	0.0037	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Hexachlorobutadiene	ND	0.021	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Hexanone	0.031	0.013	0.31	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Isopropylbenzene	ND	0.0057	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
4-Isopropyltoluene	ND	0.0079	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Methylene chloride	ND	0.022	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
n-Butylbenzene	ND	0.0082	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
n-Propylbenzene	ND	0.0049	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
sec-Butylbenzene	ND	0.025	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Styrene	ND	0.0042	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
tert-Butylbenzene	ND	0.0071	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,1,2-Tetrachloroethane	ND	0.0045	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,2,2-Tetrachloroethane	0.017	0.0099	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Tetrachloroethene (PCE)	ND	0.0084	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
trans-1,2-DCE	ND	0.0059	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
trans-1,3-Dichloropropene	ND	0.0072	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,3-Trichlorobenzene	ND	0.0047	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,1-Trichloroethane	ND	0.0068	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,2-Trichloroethane	ND	0.0077	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Trichloroethene (TCE)	ND	0.0060	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Trichlorofluoromethane	ND	0.0070	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,3-Trichloropropane	ND	0.013	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0058	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Xylenes, Total	ND	0.016	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Surr: Dibromofluoromethane	98.1		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
Surr: Toluene-d8	102		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
Surr: 4-Bromofluorobenzene	115		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	1.2	0.85	3.1	J	mg/Kg	1	8/24/2021 5:32:42 AM	G80737
Surr: BFB	106	0	70-130		%Rec	1	8/24/2021 5:32:42 AM	G80737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB1
Project: Railcar Release Investigation
Collection Date: 8/11/2021 12:00:00 PM
Lab ID: 2108721-057 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Acetone	42	2.5	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Butanone	30	2.0	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB1
Project: Railcar Release Investigation
Collection Date: 8/11/2021 12:00:00 PM
Lab ID: 2108721-057 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Hexanone	2.4	1.8	10	J	µg/L	1	8/18/2021 1:48:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 1:48:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	85.2	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573
Surr: 4-Bromofluorobenzene	96.8	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573
Surr: Dibromofluoromethane	87.0	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573
Surr: Toluene-d8	93.1	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB2
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:00:00 PM
Lab ID: 2108721-058 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Acetone	47	2.5	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Butanone	30	2.0	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB2
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:00:00 PM
Lab ID: 2108721-058 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Hexanone	2.6	1.8	10	J	µg/L	1	8/18/2021 2:12:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 2:12:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	86.1	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573
Surr: 4-Bromofluorobenzene	97.1	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573
Surr: Dibromofluoromethane	87.1	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573
Surr: Toluene-d8	92.9	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB3
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:30:00 PM
Lab ID: 2108721-059 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Acetone	45	2.5	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Butanone	31	2.0	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB3
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:30:00 PM
Lab ID: 2108721-059 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Hexanone	2.8	1.8	10	J	µg/L	1	8/18/2021 11:56:00 AM	R80607
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 11:56:00 AM	R80607
Surr: 1,2-Dichloroethane-d4	84.7	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607
Surr: 4-Bromofluorobenzene	94.9	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607
Surr: Dibromofluoromethane	87.0	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607
Surr: Toluene-d8	92.9	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB4
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:05:00 AM
Lab ID: 2108721-060 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Acetone	37	2.5	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Butanone	24	2.0	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB4
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:05:00 AM
Lab ID: 2108721-060 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Hexanone	2.2	1.8	10	J	µg/L	1	8/18/2021 2:58:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 2:58:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	84.6	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573
Surr: 4-Bromofluorobenzene	96.4	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573
Surr: Dibromofluoromethane	86.4	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573
Surr: Toluene-d8	93.0	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB5
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:35:00 AM
Lab ID: 2108721-061 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Acetone	38	2.5	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Butanone	25	2.0	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB5
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:35:00 AM
Lab ID: 2108721-061 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Hexanone	2.2	1.8	10	J	µg/L	1	8/18/2021 3:21:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 3:21:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	85.7	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573
Surr: 4-Bromofluorobenzene	96.4	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573
Surr: Dibromofluoromethane	86.2	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573
Surr: Toluene-d8	93.8	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB6
Project: Railcar Release Investigation
Collection Date: 8/12/2021 9:35:00 AM
Lab ID: 2108721-062 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Acetone	39	2.5	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Butanone	25	2.0	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB6
Project: Railcar Release Investigation
Collection Date: 8/12/2021 9:35:00 AM
Lab ID: 2108721-062 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Hexanone	2.3	1.8	10	J	µg/L	1	8/18/2021 3:44:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 3:44:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	85.3	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573
Surr: 4-Bromofluorobenzene	99.2	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573
Surr: Dibromofluoromethane	88.4	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573
Surr: Toluene-d8	93.4	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: MeOH Blank 1
Project: Railcar Release Investigation
Collection Date:
Lab ID: 2108721-063 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0096	0.025		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Toluene	ND	0.0064	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Ethylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.028	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0071	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,3,5-Trimethylbenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Naphthalene	ND	0.019	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1-Methylnaphthalene	ND	0.057	0.20		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Acetone	ND	0.16	0.75		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
cis-1,3-Dichloropropene	ND	0.0074	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,3-Dichlorobenzene	ND	0.0094	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dichloropropane	ND	0.0097	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 1
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-063 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1,1-Dichloropropene	ND	0.0060	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Isopropylbenzene	ND	0.0093	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
4-Isopropyltoluene	ND	0.013	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
4-Methyl-2-pentanone	ND	0.058	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
n-Propylbenzene	ND	0.0081	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
sec-Butylbenzene	ND	0.041	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0073	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0077	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Vinyl chloride	ND	0.0095	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Xylenes, Total	ND	0.026	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Surr: Dibromofluoromethane	105		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682
Surr: 1,2-Dichloroethane-d4	99.5		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682
Surr: Toluene-d8	104		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682
Surr: 4-Bromofluorobenzene	92.5		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 2
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-064 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0096	0.025		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Toluene	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Ethylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.028	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,3,5-Trimethylbenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Naphthalene	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1-Methylnaphthalene	ND	0.057	0.20		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Acetone	ND	0.16	0.75		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
cis-1,3-Dichloropropene	ND	0.0074	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,3-Dichlorobenzene	ND	0.0094	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dichloropropane	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 2
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-064 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1,1-Dichloropropene	ND	0.0060	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Isopropylbenzene	ND	0.0093	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
4-Isopropyltoluene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
4-Methyl-2-pentanone	ND	0.058	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
n-Propylbenzene	ND	0.0081	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
sec-Butylbenzene	ND	0.041	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0073	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0077	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Vinyl chloride	ND	0.0095	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Xylenes, Total	ND	0.026	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Surr: Dibromofluoromethane	107		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682
Surr: 1,2-Dichloroethane-d4	97.7		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682
Surr: Toluene-d8	105		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682
Surr: 4-Bromofluorobenzene	92.4		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 3
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-065 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0096	0.025		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Toluene	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Ethylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.028	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,3,5-Trimethylbenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Naphthalene	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1-Methylnaphthalene	ND	0.057	0.20		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Acetone	ND	0.16	0.75		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
cis-1,3-Dichloropropene	ND	0.0074	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,3-Dichlorobenzene	ND	0.0094	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dichloropropane	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 3
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-065 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1,1-Dichloropropene	ND	0.0060	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Isopropylbenzene	ND	0.0093	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
4-Isopropyltoluene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
4-Methyl-2-pentanone	ND	0.058	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
n-Propylbenzene	ND	0.0081	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
sec-Butylbenzene	ND	0.041	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0073	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0077	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Vinyl chloride	ND	0.0095	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Xylenes, Total	ND	0.026	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Surr: Dibromofluoromethane	103		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682
Surr: 1,2-Dichloroethane-d4	98.5		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682
Surr: Toluene-d8	107		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682
Surr: 4-Bromofluorobenzene	92.0		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Hall Environmental Analysis Lab	Work Order:	MBH0767
Address:	4901 Hawkins NE Suite D	Project:	2108721
	Albuquerque, NM 87109	Reported:	9/10/2021 09:17
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2108721-001A (RCR-SB1 (0'))		
Lab/Sample Number:	MBH0767-01	Collect Date:	08/11/21 10:00
Date Received:	08/19/21 11:03	Collected By:	
Matrix:	Solid		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.5	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0467	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*67.6%*		*40-130*	*8/27/21 19:31*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-002A (RCR-SB1 (2.5'))
Lab/Sample Number: MBH0767-02 Collect Date: 08/11/21 10:05
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.4	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0768	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Acenaphthene	0.0361	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Acenaphthylene	0.0394	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Anthracene	0.0678	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.286	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[a]anthracene	0.0896	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[a]pyrene	0.156	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.298	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0463	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Chrysene	0.911	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0803	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Fluoranthene	0.150	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0776	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Phenanthrene	0.0337	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Pyrene	0.788	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*72.1%*		*40-130*	*8/30/21 17:45*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-003A (RCR-SB1 (4'))
Lab/Sample Number: MBH0767-03 Collect Date: 08/11/21 10:10
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	82.5	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	1.59	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Acenaphthene	0.124	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Acenaphthylene	0.0452	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Anthracene	0.0264	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[a]anthracene	0.0444	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0154	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Chrysene	0.0855	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Fluoranthene	0.0213	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Fluorene	0.271	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Naphthalene	0.0425	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Phenanthrene	0.514	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Pyrene	0.111	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*58.0%*		*40-130*	*8/27/21 19:07*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-004A (RCR-SB1 (5'))
Lab/Sample Number: MBH0767-04 Collect Date: 08/11/21 10:12
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.7	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.111	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Fluorene	0.0342	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Naphthalene	0.0190	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Phenanthrene	0.102	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*87.1%*		*40-130*	*8/27/21 14:25*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108721-005A (RCR-SB1 (7.5'))
Lab/Sample Number: MBH0767-05 Collect Date: 08/11/21 10:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.386	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
2-Methylnaphthalene	0.0614	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Acenaphthene	0.0497	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Acenaphthylene	0.0450	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Anthracene	0.0345	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[a]anthracene	0.0182	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Chrysene	0.0500	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Fluorene	0.279	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Naphthalene	0.0318	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Phenanthrene	0.537	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Pyrene	0.0765	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.4%*		*40-130*	*8/27/21 14:49*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-006A (RCR-SB1 (8'))
Lab/Sample Number: MBH0767-06 Collect Date: 08/11/21 10:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.8	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0890	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
2-Methylnaphthalene	0.0355	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Acenaphthene	0.0139	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Acenaphthylene	0.0128	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Fluorene	0.0636	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Phenanthrene	0.162	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Pyrene	0.0190	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*74.9%*		*40-130*	*8/27/21 15:12*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-007A (RCR-SB2 (0'))
Lab/Sample Number: MBH0767-07 Collect Date: 08/11/21 11:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	89.4	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0575	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Pyrene	0.0281	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*67.9%*		*40-130*	*8/27/21 19:54*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-008A (RCR-SB2 (2'))
Lab/Sample Number: MBH0767-08 Collect Date: 08/11/21 11:35
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.0	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	4.24	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Acenaphthene	1.73	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Acenaphthylene	0.342	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Anthracene	0.417	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[a]anthracene	0.689	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.357	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Chrysene	1.69	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Fluoranthene	0.458	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Fluorene	2.07	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Naphthalene	0.441	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Phenanthrene	3.41	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Pyrene	2.05	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*71.9%*		*40-130*	*8/30/21 18:56*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-009A (RCR-SB2 (2.5'))
Lab/Sample Number: MBH0767-09 Collect Date: 08/11/21 11:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.1	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.268	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
2-Methylnaphthalene	0.0545	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Acenaphthene	0.0364	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0459	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[a]anthracene	0.0489	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Fluorene	0.0618	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Naphthalene	0.0545	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Phenanthrene	0.177	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Pyrene	0.0546	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*69.6%*		*40-130*	*8/27/21 22:39*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-010A (RCR-SB2 (5'))
Lab/Sample Number: MBH0767-10 Collect Date: 08/11/21 11:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*79.3%*		*40-130*	*8/27/21 15:36*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-011A (RCR-SB2 (7.5'))
Lab/Sample Number: MBH0767-11 Collect Date: 08/11/21 11:50
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	78.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*76.9%*		*40-130*	*8/27/21 17:33*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-012A (RCR-SB2 (8'))
Lab/Sample Number: MBH0767-12 Collect Date: 08/11/21 11:55
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.2	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*80.2%*		*40-130*	*8/27/21 17:57*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-013A (RCR-SB3 (0'))
Lab/Sample Number: MBH0767-13 Collect Date: 08/11/21 12:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	90.0	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.240	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0395	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Chrysene	0.0275	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0419	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0604	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Naphthalene	0.0321	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*76.6%*		*40-130*	*8/30/21 18:09*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108721-014A (RCR-SB3 (2.5'))
Lab/Sample Number: MBH0767-14 Collect Date: 08/11/21 12:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	88.1	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0301	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
2-Methylnaphthalene	0.0287	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0260	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.5%*		*40-130*	*8/27/21 20:18*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-016A (RCR-SB3 (7.5'))
Lab/Sample Number: MBH0767-15 Collect Date: 08/11/21 12:55
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.6	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0458	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
2-Methylnaphthalene	0.0138	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Phenanthrene	0.0126	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*69.4%*		*40-130*	*8/27/21 18:20*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-017A (RCR-SB3 (8'))
Lab/Sample Number: MBH0767-16 Collect Date: 08/11/21 13:00
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	87.2	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0216	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Phenanthrene	0.0120	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*69.1%*		*40-130*	*8/27/21 18:44*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-018A (RCR-SB4 (0'))
Lab/Sample Number: MBH0767-17 Collect Date: 08/11/21 14:00
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	94.1	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	8.95	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
2-Methylnaphthalene	11.3	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Acenaphthene	0.438	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Acenaphthylene	0.160	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[a]anthracene	0.281	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.123	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Chrysene	0.373	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Fluorene	0.717	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Naphthalene	1.98	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Phenanthrene	1.47	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Pyrene	0.367	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*80.7%*		*40-130*	*8/30/21 18:32*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-019A (RCR-SB4 (2'))
Lab/Sample Number: MBH0767-18 Collect Date: 08/11/21 14:03
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	88.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	1.90	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
2-Methylnaphthalene	2.88	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Acenaphthene	0.124	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Acenaphthylene	0.0362	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Chrysene	0.0276	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Fluorene	0.191	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Naphthalene	0.261	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Phenanthrene	0.310	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Pyrene	0.0493	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*77.3%*		*40-130*	*8/27/21 22:15*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-020A (RCR-SB4 (2.5'))
Lab/Sample Number: MBH0767-19 Collect Date: 08/11/21 14:05
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.2	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.112	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
2-Methylnaphthalene	0.173	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[a]anthracene	0.0317	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Chrysene	0.0318	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Naphthalene	0.0346	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Phenanthrene	0.0768	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Pyrene	0.0539	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*56.0%*		*40-130*	*9/1/21 0:51*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-021A (RCR-SB4 (5'))
Lab/Sample Number: MBH0767-20 Collect Date: 08/11/21 07:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.1	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*74.0%*		*40-130*	*8/31/21 21:10*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-022A (RCR-SB4 (7.5'))
Lab/Sample Number: MBH0767-21 Collect Date: 08/11/21 14:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.4	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*63.5%*		*40-130*	*8/31/21 21:32*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-023A (RCR-SB4 (8'))
Lab/Sample Number: MBH0767-22 Collect Date: 08/11/21 14:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	83.0	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*50.8%*		*40-130*	*8/31/21 21:54*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-024A (RCR-SB5 (0'))
Lab/Sample Number: MBH0767-23 Collect Date: 08/11/21 15:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	93.9	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0268	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.0%*		*40-130*	*9/1/21 1:13*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108721-025A (RCR-SB5 (2.5'))
Lab/Sample Number: MBH0767-24 Collect Date: 08/11/21 15:35
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	91.3	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
2-Methylnaphthalene	0.0243	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.215	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[a]anthracene	0.0756	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[a]pyrene	0.330	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.217	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Chrysene	0.278	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0775	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0727	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Naphthalene	0.0652	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Pyrene	0.0895	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.7%*		*40-130*	*9/1/21 3:24*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108721-026A (RCR-SB5 (4'))
Lab/Sample Number: MBH0767-25 Collect Date: 08/11/21 15:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	78.4	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Chrysene	0.0441	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Pyrene	0.0345	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*44.5%*		*40-130*	*8/31/21 22:16*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-027A (RCR-SB5 (5'))
Lab/Sample Number: MBH0767-26 Collect Date: 08/11/21 15:42
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	84.9	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0222	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
2-Methylnaphthalene	0.0406	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0766	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[a]anthracene	0.0959	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[a]pyrene	0.0908	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.109	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0160	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Chrysene	0.302	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0432	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Fluoranthene	0.0128	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0302	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Naphthalene	0.0337	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Pyrene	0.362	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*46.4%*		*40-130*	*9/1/21 1:34*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-028A (RCR-SB5 (7.5'))
Lab/Sample Number: MBH0767-27 Collect Date: 08/11/21 15:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.5	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.237	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
2-Methylnaphthalene	0.407	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Chrysene	0.0171	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Fluorene	0.0154	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Naphthalene	0.234	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Phenanthrene	0.0352	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*63.3%*		*40-130*	*8/31/21 22:38*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-029A (RCR-SB5 (8'))
Lab/Sample Number: MBH0767-28 Collect Date: 08/11/21 15:50
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.0	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.736	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
2-Methylnaphthalene	1.33	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Acenaphthene	0.0211	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Acenaphthylene	0.0123	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Fluorene	0.0794	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Naphthalene	0.561	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Phenanthrene	0.162	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Pyrene	0.0286	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*56.3%*		*40-130*	*8/31/21 23:00*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-031A (RCR-SB6 (2.5'))
Lab/Sample Number: MBH0767-29 Collect Date: 08/11/21 16:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	83.0	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	30.7	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
2-Methylnaphthalene	52.2	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Acenaphthene	0.358	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Acenaphthylene	0.312	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[a]anthracene	0.918	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[a]pyrene	0.578	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.463	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Chrysene	2.38	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Fluoranthene	0.462	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Fluorene	1.84	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Naphthalene	17.5	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Phenanthrene	4.66	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Pyrene	2.44	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.0%*		*40-130*	*9/1/21 13:23*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-032A (RCR-SB6 (3'))
Lab/Sample Number: MBH0767-30 Collect Date: 08/11/21 16:25
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.1	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	43.1	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
2-Methylnaphthalene	68.0	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Acenaphthene	0.945	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Acenaphthylene	0.538	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Anthracene	0.340	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[a]anthracene	0.960	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[a]pyrene	0.549	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.314	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Chrysene	2.12	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Fluoranthene	0.464	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Fluorene	3.54	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Naphthalene	26.6	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Phenanthrene	8.20	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Pyrene	2.47	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*59.9%*		*40-130*	*9/1/21 13:45*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-033A (RCR-SS1 (0.5'))
Lab/Sample Number: MBH0767-31 Collect Date: 08/12/21 08:00
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.7	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.104	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
2-Methylnaphthalene	0.153	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Naphthalene	0.0821	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Phenanthrene	0.0273	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Pyrene	0.0180	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*46.4%*		*40-130*	*8/31/21 23:22*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-034A (RCR-SS1 (1'))
Lab/Sample Number: MBH0767-32 Collect Date: 08/12/21 08:05
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.2	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*49.5%*		*40-130*	*8/31/21 23:44*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-035A (RCR-SS2 (0.5'))
Lab/Sample Number: MBH0767-33 Collect Date: 08/12/21 08:10
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	78.3	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.604	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
2-Methylnaphthalene	0.421	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Acenaphthene	0.0189	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Acenaphthylene	0.0188	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0221	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[a]anthracene	0.0341	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[a]pyrene	0.0176	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0254	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Chrysene	0.102	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Fluoranthene	0.0147	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Fluorene	0.0728	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Naphthalene	0.217	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Phenanthrene	0.0284	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Pyrene	0.177	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.8%*		*40-130*	*9/1/21 0:06*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-036A (RCR-SS2 (1'))
Lab/Sample Number: MBH0767-34 Collect Date: 08/12/21 08:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	75.9	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	6.56	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
2-Methylnaphthalene	6.91	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Acenaphthylene	0.0983	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Chrysene	0.0880	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Fluorene	0.475	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Naphthalene	1.27	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Phenanthrene	0.384	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Pyrene	0.127	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*49.4%*		*40-130*	*9/1/21 0:28*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-037A (RCR-SS3 (0.5'))
Lab/Sample Number: MBH0767-35 Collect Date: 08/12/21 08:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.3	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	11.2	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
2-Methylnaphthalene	16.5	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Acenaphthene	0.548	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Chrysene	0.731	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Fluorene	2.00	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Naphthalene	5.50	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Phenanthrene	3.71	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Pyrene	1.61	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*64.5%*		*40-130*	*9/1/21 14:07*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-038A (RCR-SS3 (1'))
Lab/Sample Number: MBH0767-36 Collect Date: 08/12/21 08:20 - 08/12/21 08:25
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	75.4	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	18.2	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
2-Methylnaphthalene	32.0	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Acenaphthene	0.613	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Acenaphthylene	0.280	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Chrysene	0.574	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Fluorene	1.84	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Naphthalene	15.0	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Phenanthrene	3.74	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Pyrene	1.31	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*60.6%*		*40-130*	*9/1/21 14:29*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-039A (RCR-SS4 (0.5'))
Lab/Sample Number: MBH0767-37 Collect Date: 08/12/21 08:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	70.6	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	2.90	mg/kg dry	0.142	9/2/21 17:46	TGT	EPA 8270D	
2-Methylnaphthalene	2.88	mg/kg dry	0.142	9/2/21 17:46	TGT	EPA 8270D	
Acenaphthene	0.225	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Acenaphthylene	0.104	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Anthracene	0.0568	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0781	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[a]anthracene	0.111	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[a]pyrene	0.0346	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0667	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Chrysene	0.413	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0343	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Fluoranthene	0.0577	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Fluorene	0.638	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0230	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Naphthalene	0.915	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Phenanthrene	0.802	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Pyrene	0.341	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*52.4%*		*40-130*	*9/2/21 17:46*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-040A (RCR-SS4 (1'))
Lab/Sample Number: MBH0767-38 Collect Date: 08/12/21 08:35
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.2	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	2.29	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
2-Methylnaphthalene	3.47	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Acenaphthene	0.139	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Acenaphthylene	0.0490	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Anthracene	0.0493	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Chrysene	0.0176	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Fluoranthene	0.0175	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Fluorene	0.280	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Naphthalene	0.610	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Phenanthrene	0.514	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Pyrene	0.0564	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.5%*		*40-130*	*9/2/21 15:25*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-041A (RCR-SS5 (0.5'))
Lab/Sample Number: MBH0767-39 Collect Date: 08/12/21 08:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	87.8	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.475	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
2-Methylnaphthalene	0.129	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Acenaphthene	0.0502	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Acenaphthylene	0.0275	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Anthracene	0.0340	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0759	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[a]anthracene	0.182	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[a]pyrene	0.0841	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0639	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0121	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Chrysene	0.427	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0260	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Fluoranthene	0.101	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Fluorene	0.143	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0229	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Naphthalene	0.0461	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Phenanthrene	0.136	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Pyrene	0.870	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*53.1%*		*40-130*	*9/2/21 18:10*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-042A (RCR-SS5 (1'))
Lab/Sample Number: MBH0767-40 Collect Date: 08/12/21 08:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	85.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	1.01	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
2-Methylnaphthalene	0.553	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Acenaphthene	0.138	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Acenaphthylene	0.0426	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Anthracene	0.0894	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.231	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[a]anthracene	0.395	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[a]pyrene	0.307	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.212	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0370	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Chrysene	1.21	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0860	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Fluoranthene	0.170	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Fluorene	0.250	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0683	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Naphthalene	0.178	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Phenanthrene	0.479	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Pyrene	1.68	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*51.9%*		*40-130*	*9/2/21 18:34*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-043A (RCR-SS6 (0.5'))
Lab/Sample Number: MBH0767-41 Collect Date: 08/12/21 08:50
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	77.9	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Chrysene	0.0198	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Pyrene	0.0305	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.4%*		*40-130*	*9/2/21 15:49*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-044A (RCR-SS6 (1'))
Lab/Sample Number: MBH0767-42 Collect Date: 08/12/21 08:55
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.4	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0446	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
2-Methylnaphthalene	0.0192	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Fluorene	0.0285	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Naphthalene	0.0181	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Phenanthrene	0.0547	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*66.1%*		*40-130*	*9/2/21 16:12*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-045A (RCR-SS7 (0.5'))
Lab/Sample Number: MBH0767-43 Collect Date: 08/12/21 09:10
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	85.4	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.102	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Chrysene	0.0203	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0167	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Pyrene	0.0160	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*58.9%*		*40-130*	*9/2/21 18:57*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-046A (RCR-SS7 (1'))
Lab/Sample Number: MBH0767-44 Collect Date: 08/12/21 09:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	84.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0287	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.9%*		*40-130*	*9/2/21 19:21*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-047A (RCR-SS8 (0.5'))
Lab/Sample Number: MBH0767-45 Collect Date: 08/12/21 09:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	72.4	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Anthracene	0.0181	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.115	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0169	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Chrysene	0.0269	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0144	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0266	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Pyrene	0.0229	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*47.9%*		*40-130*	*9/2/21 19:44*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-048A (RCR-SS8 (1'))
Lab/Sample Number: MBH0767-46 Collect Date: 08/12/21 09:25
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	82.7	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0620	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Chrysene	0.0145	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0145	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0217	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Pyrene	0.0124	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*57.2%*		*40-130*	*9/2/21 20:08*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-049A (RCR-SS9 (0.5'))
Lab/Sample Number: MBH0767-47 Collect Date: 08/12/21 09:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	91.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0730	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Chrysene	0.0199	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0146	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Pyrene	0.0156	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*48.9%*		*40-130*	*9/2/21 20:31*	*TGT*	*EPA 8270D*	

Authorized Signature,



Justin Doty For Todd Taruscio, Laboratory Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

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The results reported related only to the samples indicated.

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Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0680 - ASE Ext										
Blank (BBH0680-BLK1)				Prepared: 8/20/2021 Analyzed: 8/27/2021						
Naphthalene	ND		0.0100	mg/kg wet						
2-Methylnaphthalene	ND		0.0100	mg/kg wet						
1-Methylnaphthalene	ND		0.0100	mg/kg wet						
Acenaphthylene	ND		0.0100	mg/kg wet						
Acenaphthene	ND		0.0100	mg/kg wet						
Fluorene	ND		0.0100	mg/kg wet						
Phenanthrene	ND		0.0100	mg/kg wet						
Anthracene	ND		0.0100	mg/kg wet						
Fluoranthene	ND		0.0100	mg/kg wet						
Pyrene	ND		0.0100	mg/kg wet						
Benzo[a]anthracene	ND		0.0100	mg/kg wet						
Chrysene	ND		0.0100	mg/kg wet						
Benzo[b]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[k]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[a]pyrene	ND		0.0100	mg/kg wet						
Indeno(1,2,3-cd)pyrene	ND		0.0100	mg/kg wet						
Dibenz(a,h)anthracene	ND		0.0100	mg/kg wet						
Benzo(g,h,i)perylene	ND		0.0100	mg/kg wet						
Surrogate: Terphenyl-d14			*4.26*	*mg/kg wet*	*5.15*		*82.7*	*40-130*		
LCS (BBH0680-BS1)				Prepared: 8/20/2021 Analyzed: 8/28/2021						
Naphthalene	0.443		0.0100	mg/kg wet	0.500		88.6	32-133		
2-Methylnaphthalene	0.503		0.0100	mg/kg wet	0.500		101	45-138		
1-Methylnaphthalene	0.514		0.0100	mg/kg wet	0.500		103	47-135		
Acenaphthylene	0.602		0.0100	mg/kg wet	0.500		120	48-136		
Acenaphthene	0.475		0.0100	mg/kg wet	0.500		95.1	52-127		
Fluorene	0.539		0.0100	mg/kg wet	0.500		108	56-126		
Phenanthrene	0.456		0.0100	mg/kg wet	0.500		91.2	69-127		
Anthracene	0.496		0.0100	mg/kg wet	0.500		99.1	32-141		
Fluoranthene	0.459		0.0100	mg/kg wet	0.500		91.7	45-130		
Pyrene	0.458		0.0100	mg/kg wet	0.500		91.6	71-141		
Benzo[a]anthracene	0.469		0.0100	mg/kg wet	0.500		93.9	47-139		
Chrysene	0.457		0.0100	mg/kg wet	0.500		91.4	36-133		
Benzo[b]fluoranthene	0.528		0.0100	mg/kg wet	0.500		106	48-177		
Benzo[k]fluoranthene	0.482		0.0100	mg/kg wet	0.500		96.4	47-169		
Benzo[a]pyrene	0.471		0.0100	mg/kg wet	0.500		94.3	51-155		
Indeno(1,2,3-cd)pyrene	0.530		0.0100	mg/kg wet	0.500		106	66-166		
Dibenz(a,h)anthracene	0.531		0.0100	mg/kg wet	0.500		106	57-155		
Benzo(g,h,i)perylene	0.491		0.0100	mg/kg wet	0.500		98.2	49-165		
Surrogate: Terphenyl-d14			*4.17*	*mg/kg wet*	*5.15*		*81.1*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0680 - ASE Ext (Continued)										
LCS Dup (BBH0680-BSD1)				Prepared: 8/20/2021 Analyzed: 8/28/2021						
Naphthalene	0.444		0.0100	mg/kg wet	0.500		88.8	32-133	0.247	50
2-Methylnaphthalene	0.510		0.0100	mg/kg wet	0.500		102	45-138	1.56	50
1-Methylnaphthalene	0.508		0.0100	mg/kg wet	0.500		102	47-135	1.16	50
Acenaphthylene	0.549		0.0100	mg/kg wet	0.500		110	48-136	9.23	50
Acenaphthene	0.470		0.0100	mg/kg wet	0.500		93.9	52-127	1.18	50
Fluorene	0.530		0.0100	mg/kg wet	0.500		106	56-126	1.81	50
Phenanthrene	0.458		0.0100	mg/kg wet	0.500		91.5	69-127	0.406	50
Anthracene	0.472		0.0100	mg/kg wet	0.500		94.3	32-141	4.99	50
Fluoranthene	0.456		0.0100	mg/kg wet	0.500		91.2	45-130	0.560	50
Pyrene	0.457		0.0100	mg/kg wet	0.500		91.5	71-141	0.159	50
Benzo[a]anthracene	0.472		0.0100	mg/kg wet	0.500		94.3	47-139	0.462	50
Chrysene	0.456		0.0100	mg/kg wet	0.500		91.2	36-133	0.189	50
Benzo[b]fluoranthene	0.467		0.0100	mg/kg wet	0.500		93.4	48-177	12.3	50
Benzo[k]fluoranthene	0.467		0.0100	mg/kg wet	0.500		93.4	47-169	3.09	50
Benzo[a]pyrene	0.462		0.0100	mg/kg wet	0.500		92.5	51-155	1.97	50
Indeno(1,2,3-cd)pyrene	0.479		0.0100	mg/kg wet	0.500		95.8	66-166	10.1	50
Dibenz(a,h)anthracene	0.483		0.0100	mg/kg wet	0.500		96.5	57-155	9.46	50
Benzo(g,h,i)perylene	0.441		0.0100	mg/kg wet	0.500		88.2	49-165	10.7	50
Surrogate: Terphenyl-d14			*4.22*	*mg/kg wet*	*5.15*		*82.0*	*40-130*		
Batch: BBH0741 - SVOC Solid										
Blank (BBH0741-BLK1)				Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	ND		0.0100	mg/kg wet						
2-Methylnaphthalene	ND		0.0100	mg/kg wet						
1-Methylnaphthalene	ND		0.0100	mg/kg wet						
Acenaphthylene	ND		0.0100	mg/kg wet						
Acenaphthene	ND		0.0100	mg/kg wet						
Fluorene	ND		0.0100	mg/kg wet						
Phenanthrene	ND		0.0100	mg/kg wet						
Anthracene	ND		0.0100	mg/kg wet						
Fluoranthene	ND		0.0100	mg/kg wet						
Pyrene	ND		0.0100	mg/kg wet						
Benzo[a]anthracene	ND		0.0100	mg/kg wet						
Chrysene	ND		0.0100	mg/kg wet						
Benzo[b]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[k]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[a]pyrene	ND		0.0100	mg/kg wet						
Indeno(1,2,3-cd)pyrene	ND		0.0100	mg/kg wet						
Dibenz(a,h)anthracene	ND		0.0100	mg/kg wet						
Benzo(g,h,i)perylene	ND		0.0100	mg/kg wet						
Surrogate: Terphenyl-d14			*3.72*	*mg/kg wet*	*5.15*		*72.2*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0741 - SVOC Solid (Continued)										
LCS (BBH0741-BS1)				Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.353		0.0100	mg/kg wet	0.500		70.6	32-133		
2-Methylnaphthalene	0.400		0.0100	mg/kg wet	0.500		80.1	45-138		
1-Methylnaphthalene	0.377		0.0100	mg/kg wet	0.500		75.5	47-135		
Acenaphthylene	0.509		0.0100	mg/kg wet	0.500		102	48-136		
Acenaphthene	0.394		0.0100	mg/kg wet	0.500		78.7	52-127		
Fluorene	0.475		0.0100	mg/kg wet	0.500		94.9	56-126		
Phenanthrene	0.399		0.0100	mg/kg wet	0.500		79.8	69-127		
Anthracene	0.439		0.0100	mg/kg wet	0.500		87.9	32-141		
Fluoranthene	0.433		0.0100	mg/kg wet	0.500		86.6	45-130		
Pyrene	0.409		0.0100	mg/kg wet	0.500		81.9	71-141		
Benzo[a]anthracene	0.404		0.0100	mg/kg wet	0.500		80.8	47-139		
Chrysene	0.412		0.0100	mg/kg wet	0.500		82.3	36-133		
Benzo[b]fluoranthene	0.442		0.0100	mg/kg wet	0.500		88.5	48-177		
Benzo[k]fluoranthene	0.385		0.0100	mg/kg wet	0.500		77.0	47-169		
Benzo[a]pyrene	0.416		0.0100	mg/kg wet	0.500		83.2	51-155		
Indeno(1,2,3-cd)pyrene	0.444		0.0100	mg/kg wet	0.500		88.9	66-166		
Dibenz(a,h)anthracene	0.466		0.0100	mg/kg wet	0.500		93.2	57-155		
Benzo(g,h,i)perylene	0.444		0.0100	mg/kg wet	0.500		88.8	49-165		
Surrogate: Terphenyl-d14			*3.42*	*mg/kg wet*	*5.15*		*66.4*	*40-130*		
LCS Dup (BBH0741-BSD1)				Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.422		0.0100	mg/kg wet	0.500		84.4	32-133	17.8	50
2-Methylnaphthalene	0.573		0.0100	mg/kg wet	0.500		115	45-138	35.5	50
1-Methylnaphthalene	0.505		0.0100	mg/kg wet	0.500		101	47-135	28.9	50
Acenaphthylene	0.516		0.0100	mg/kg wet	0.500		103	48-136	1.26	50
Acenaphthene	0.406		0.0100	mg/kg wet	0.500		81.2	52-127	3.04	50
Fluorene	0.515		0.0100	mg/kg wet	0.500		103	56-126	8.18	50
Phenanthrene	0.459		0.0100	mg/kg wet	0.500		91.8	69-127	14.0	50
Anthracene	0.457		0.0100	mg/kg wet	0.500		91.4	32-141	3.98	50
Fluoranthene	0.473		0.0100	mg/kg wet	0.500		94.6	45-130	8.86	50
Pyrene	0.452		0.0100	mg/kg wet	0.500		90.4	71-141	9.85	50
Benzo[a]anthracene	0.413		0.0100	mg/kg wet	0.500		82.6	47-139	2.21	50
Chrysene	0.418		0.0100	mg/kg wet	0.500		83.6	36-133	1.49	50
Benzo[b]fluoranthene	0.463		0.0100	mg/kg wet	0.500		92.6	48-177	4.62	50
Benzo[k]fluoranthene	0.396		0.0100	mg/kg wet	0.500		79.1	47-169	2.67	50
Benzo[a]pyrene	0.381		0.0100	mg/kg wet	0.500		76.1	51-155	8.89	50
Indeno(1,2,3-cd)pyrene	0.425		0.0100	mg/kg wet	0.500		84.9	66-166	4.52	50
Dibenz(a,h)anthracene	0.454		0.0100	mg/kg wet	0.500		90.8	57-155	2.70	50
Benzo(g,h,i)perylene	0.421		0.0100	mg/kg wet	0.500		84.1	49-165	5.38	50
Surrogate: Terphenyl-d14			*3.54*	*mg/kg wet*	*5.15*		*68.8*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0741 - SVOC Solid (Continued)										
Matrix Spike (BBH0741-MS1)	**Source: MBH0767-20**			Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.433		0.0126	mg/kg dry	0.632	0.00941	67.0	30-140		
2-Methylnaphthalene	0.509		0.0126	mg/kg dry	0.632	0.00891	79.2	30-140		
1-Methylnaphthalene	0.472		0.0126	mg/kg dry	0.632	ND	74.7	30-140		
Acenaphthylene	0.549		0.0126	mg/kg dry	0.632	ND	86.8	30-140		
Acenaphthene	0.445		0.0126	mg/kg dry	0.632	ND	70.4	30-140		
Fluorene	0.552		0.0126	mg/kg dry	0.632	ND	87.3	30-140		
Phenanthrene	0.451		0.0126	mg/kg dry	0.632	ND	71.4	30-140		
Anthracene	0.491		0.0126	mg/kg dry	0.632	ND	77.7	30-140		
Fluoranthene	0.497		0.0126	mg/kg dry	0.632	ND	78.6	30-140		
Pyrene	0.459		0.0126	mg/kg dry	0.632	ND	72.6	30-140		
Benzo[a]anthracene	0.468		0.0126	mg/kg dry	0.632	ND	74.1	30-140		
Chrysene	0.438		0.0126	mg/kg dry	0.632	ND	69.3	30-140		
Benzo[b]fluoranthene	0.544		0.0126	mg/kg dry	0.632	ND	86.1	30-140		
Benzo[k]fluoranthene	0.436		0.0126	mg/kg dry	0.632	ND	69.0	30-140		
Benzo[a]pyrene	0.465		0.0126	mg/kg dry	0.632	ND	73.6	30-140		
Indeno(1,2,3-cd)pyrene	0.501		0.0126	mg/kg dry	0.632	ND	79.3	30-140		
Dibenz(a,h)anthracene	0.539		0.0126	mg/kg dry	0.632	ND	85.2	30-140		
Benzo(g,h,i)perylene	0.483		0.0126	mg/kg dry	0.632	ND	76.4	30-140		
Surrogate: Terphenyl-d14			*4.08*	*mg/kg dry*	*6.51*		*62.7*	*40-130*		
Matrix Spike Dup (BBH0741-MSD1)	**Source: MBH0767-20**			Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.384		0.0126	mg/kg dry	0.632	0.00941	59.3	30-140	11.9	50
2-Methylnaphthalene	0.478		0.0126	mg/kg dry	0.632	0.00891	74.2	30-140	6.37	50
1-Methylnaphthalene	0.476		0.0126	mg/kg dry	0.632	ND	75.4	30-140	0.844	50
Acenaphthylene	0.521		0.0126	mg/kg dry	0.632	ND	82.4	30-140	5.24	50
Acenaphthene	0.428		0.0126	mg/kg dry	0.632	ND	67.7	30-140	3.95	50
Fluorene	0.531		0.0126	mg/kg dry	0.632	ND	84.1	30-140	3.75	50
Phenanthrene	0.457		0.0126	mg/kg dry	0.632	ND	72.3	30-140	1.25	50
Anthracene	0.482		0.0126	mg/kg dry	0.632	ND	76.3	30-140	1.85	50
Fluoranthene	0.513		0.0126	mg/kg dry	0.632	ND	81.1	30-140	3.14	50
Pyrene	0.475		0.0126	mg/kg dry	0.632	ND	75.2	30-140	3.54	50
Benzo[a]anthracene	0.453		0.0126	mg/kg dry	0.632	ND	71.7	30-140	3.36	50
Chrysene	0.451		0.0126	mg/kg dry	0.632	ND	71.3	30-140	2.89	50
Benzo[b]fluoranthene	0.519		0.0126	mg/kg dry	0.632	ND	82.1	30-140	4.79	50
Benzo[k]fluoranthene	0.419		0.0126	mg/kg dry	0.632	ND	66.2	30-140	4.09	50
Benzo[a]pyrene	0.478		0.0126	mg/kg dry	0.632	ND	75.7	30-140	2.82	50
Indeno(1,2,3-cd)pyrene	0.580		0.0126	mg/kg dry	0.632	ND	91.9	30-140	14.7	50
Dibenz(a,h)anthracene	0.628		0.0126	mg/kg dry	0.632	ND	99.4	30-140	15.4	50
Benzo(g,h,i)perylene	0.562		0.0126	mg/kg dry	0.632	ND	88.9	30-140	15.1	50
Surrogate: Terphenyl-d14			*3.61*	*mg/kg dry*	*6.51*		*55.4*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid										
LCS (BBH0797-BS1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.482		0.0100	mg/kg wet	0.500		96.3	32-133		
2-Methylnaphthalene	0.616		0.0100	mg/kg wet	0.500		123	45-138		
1-Methylnaphthalene	0.558		0.0100	mg/kg wet	0.500		112	47-135		
Acenaphthylene	0.589		0.0100	mg/kg wet	0.500		118	48-136		
Acenaphthene	0.451		0.0100	mg/kg wet	0.500		90.1	52-127		
Fluorene	0.572		0.0100	mg/kg wet	0.500		114	56-126		
Phenanthrene	0.536		0.0100	mg/kg wet	0.500		107	69-127		
Anthracene	0.482		0.0100	mg/kg wet	0.500		96.4	32-141		
Fluoranthene	0.478		0.0100	mg/kg wet	0.500		95.7	45-130		
Pyrene	0.459		0.0100	mg/kg wet	0.500		91.8	71-141		
Benzo[a]anthracene	0.472		0.0100	mg/kg wet	0.500		94.4	47-139		
Chrysene	0.462		0.0100	mg/kg wet	0.500		92.3	36-133		
Benzo[b]fluoranthene	0.522		0.0100	mg/kg wet	0.500		104	48-177		
Benzo[k]fluoranthene	0.454		0.0100	mg/kg wet	0.500		90.9	47-169		
Benzo[a]pyrene	0.432		0.0100	mg/kg wet	0.500		86.5	51-155		
Indeno(1,2,3-cd)pyrene	0.363		0.0100	mg/kg wet	0.500		72.6	66-166		
Dibenz(a,h)anthracene	0.502		0.0100	mg/kg wet	0.500		100	57-155		
Benzo(g,h,i)perylene	0.505		0.0100	mg/kg wet	0.500		101	49-165		
Surrogate: Terphenyl-d14			*4.85*	*mg/kg wet*	*5.15*		*94.1*	*40-130*		
LCS Dup (BBH0797-BSD1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.403		0.0100	mg/kg wet	0.500		80.6	32-133	17.7	50
2-Methylnaphthalene	0.484		0.0100	mg/kg wet	0.500		96.9	45-138	23.9	50
1-Methylnaphthalene	0.468		0.0100	mg/kg wet	0.500		93.5	47-135	17.6	50
Acenaphthylene	0.587		0.0100	mg/kg wet	0.500		117	48-136	0.296	50
Acenaphthene	0.447		0.0100	mg/kg wet	0.500		89.3	52-127	0.869	50
Fluorene	0.545		0.0100	mg/kg wet	0.500		109	56-126	4.87	50
Phenanthrene	0.518		0.0100	mg/kg wet	0.500		104	69-127	3.36	50
Anthracene	0.483		0.0100	mg/kg wet	0.500		96.6	32-141	0.189	50
Fluoranthene	0.428		0.0100	mg/kg wet	0.500		85.5	45-130	11.2	50
Pyrene	0.443		0.0100	mg/kg wet	0.500		88.5	71-141	3.60	50
Benzo[a]anthracene	0.464		0.0100	mg/kg wet	0.500		92.8	47-139	1.75	50
Chrysene	0.463		0.0100	mg/kg wet	0.500		92.6	36-133	0.275	50
Benzo[b]fluoranthene	0.534		0.0100	mg/kg wet	0.500		107	48-177	2.37	50
Benzo[k]fluoranthene	0.429		0.0100	mg/kg wet	0.500		85.8	47-169	5.70	50
Benzo[a]pyrene	0.427		0.0100	mg/kg wet	0.500		85.3	51-155	1.34	50
Indeno(1,2,3-cd)pyrene	0.544		0.0100	mg/kg wet	0.500		109	66-166	39.9	50
Dibenz(a,h)anthracene	0.527		0.0100	mg/kg wet	0.500		105	57-155	4.96	50
Benzo(g,h,i)perylene	0.531		0.0100	mg/kg wet	0.500		106	49-165	5.04	50
Surrogate: Terphenyl-d14			*4.16*	*mg/kg wet*	*5.15*		*80.8*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid (Continued)										
Matrix Spike (BBH0797-MS1)	**Source: MBH0767-41**			Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.440		0.0128	mg/kg dry	0.642	ND	68.5	30-140		
2-Methylnaphthalene	0.558		0.0128	mg/kg dry	0.642	0.00707	85.8	30-140		
1-Methylnaphthalene	0.530		0.0128	mg/kg dry	0.642	0.00848	81.4	30-140		
Acenaphthylene	0.557		0.0128	mg/kg dry	0.642	ND	86.8	30-140		
Acenaphthene	0.501		0.0128	mg/kg dry	0.642	ND	78.0	30-140		
Fluorene	0.560		0.0128	mg/kg dry	0.642	ND	87.4	30-140		
Phenanthrene	0.408		0.0128	mg/kg dry	0.642	0.0107	61.9	30-140		
Anthracene	0.457		0.0128	mg/kg dry	0.642	ND	71.2	30-140		
Fluoranthene	0.509		0.0128	mg/kg dry	0.642	ND	79.4	30-140		
Pyrene	0.625		0.0128	mg/kg dry	0.642	0.0305	92.6	30-140		
Benzo[a]anthracene	0.517		0.0128	mg/kg dry	0.642	ND	80.6	30-140		
Chrysene	0.575		0.0128	mg/kg dry	0.642	0.0198	86.6	30-140		
Benzo[b]fluoranthene	0.488		0.0128	mg/kg dry	0.642	ND	76.1	30-140		
Benzo[k]fluoranthene	0.478		0.0128	mg/kg dry	0.642	ND	74.5	30-140		
Benzo[a]pyrene	0.436		0.0128	mg/kg dry	0.642	ND	68.0	30-140		
Indeno(1,2,3-cd)pyrene	0.477		0.0128	mg/kg dry	0.642	ND	74.3	30-140		
Dibenz(a,h)anthracene	0.497		0.0128	mg/kg dry	0.642	ND	77.5	30-140		
Benzo(g,h,i)perylene	0.478		0.0128	mg/kg dry	0.642	ND	74.6	30-140		
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		
Matrix Spike Dup (BBH0797-MSD1)	**Source: MBH0767-41**			Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.419		0.0128	mg/kg dry	0.642	ND	65.3	30-140	4.86	50
2-Methylnaphthalene	0.499		0.0128	mg/kg dry	0.642	0.00707	76.7	30-140	11.1	50
1-Methylnaphthalene	0.487		0.0128	mg/kg dry	0.642	0.00848	74.6	30-140	8.53	50
Acenaphthylene	0.550		0.0128	mg/kg dry	0.642	ND	85.8	30-140	1.26	50
Acenaphthene	0.446		0.0128	mg/kg dry	0.642	ND	69.6	30-140	11.5	50
Fluorene	0.554		0.0128	mg/kg dry	0.642	ND	86.4	30-140	1.09	50
Phenanthrene	0.363		0.0128	mg/kg dry	0.642	0.0107	54.8	30-140	11.8	50
Anthracene	0.472		0.0128	mg/kg dry	0.642	ND	73.6	30-140	3.25	50
Fluoranthene	0.507		0.0128	mg/kg dry	0.642	ND	79.1	30-140	0.369	50
Pyrene	0.520		0.0128	mg/kg dry	0.642	0.0305	76.4	30-140	18.2	50
Benzo[a]anthracene	0.487		0.0128	mg/kg dry	0.642	ND	75.9	30-140	6.01	50
Chrysene	0.475		0.0128	mg/kg dry	0.642	0.0198	70.9	30-140	19.2	50
Benzo[b]fluoranthene	0.444		0.0128	mg/kg dry	0.642	ND	69.3	30-140	9.41	50
Benzo[k]fluoranthene	0.441		0.0128	mg/kg dry	0.642	ND	68.8	30-140	7.91	50
Benzo[a]pyrene	0.370		0.0128	mg/kg dry	0.642	ND	57.8	30-140	16.3	50
Indeno(1,2,3-cd)pyrene	0.449		0.0128	mg/kg dry	0.642	ND	70.0	30-140	5.98	50
Dibenz(a,h)anthracene	0.448		0.0128	mg/kg dry	0.642	ND	69.9	30-140	10.3	50
Benzo(g,h,i)perylene	0.436		0.0128	mg/kg dry	0.642	ND	67.9	30-140	9.37	50
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: Anatek ID	COMPANY: Anatek Labs, Inc.	PHONE: (208) 883-2839	FAX: (208) 882-9246
ADDRESS: 1282 Alturas Dr		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Moscow, ID 83843			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108721-001A	RCR-SB1 (0')	4OZGU	MeOH (Soil)	8/11/2021 10:00:00 AM	1	8270 SIMS PAH only
2	2108721-002A	RCR-SB1 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 10:05:00 AM	1	8270 SIMS PAH only
3	2108721-003A	RCR-SB1 (4')	4OZGU	MeOH (Soil)	8/11/2021 10:10:00 AM	1	8270 SIMS PAH only
4	2108721-004A	RCR-SB1 (5')	4OZGU	MeOH (Soil)	8/11/2021 10:12:00 AM	1	8270 SIMS PAH only
5	2108721-005A	RCR-SB1 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 10:15:00 AM	1	8270 SIMS PAH only
6	2108721-006A	RCR-SB1 (8')	4OZGU	MeOH (Soil)	8/11/2021 10:20:00 AM	1	8270 SIMS PAH only
7	2108721-007A	RCR-SB2 (0')	4OZGU	MeOH (Soil)	8/11/2021 11:30:00 AM	1	8270 SIMS PAH only
8	2108721-008A	RCR-SB2 (2')	4OZGU	MeOH (Soil)	8/11/2021 11:35:00 AM	1	8270 SIMS PAH only
9	2108721-009A	RCR-SB2 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 11:40:00 AM	1	8270 SIMS PAH only
10	2108721-010A	RCR-SB2 (5')	4OZGU	MeOH (Soil)	8/11/2021 11:45:00 AM	1	8270 SIMS PAH only
11	2108721-011A	RCR-SB2 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 11:50:00 AM	1	8270 SIMS PAH only
12	2108721-012A	RCR-SB2 (8')	4OZGU	MeOH (Soil)	8/11/2021 11:55:00 AM	1	8270 SIMS PAH only
13	2108721-013A	RCR-SB3 (0')	4OZGU	MeOH (Soil)	8/11/2021 12:40:00 PM	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/18/2021	Time: 3:03 PM	Received By:	Date: 8/18/21	Time: 1103
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

Page 507 of 1242

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 2 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
14	2108721-014A	RCR-SB3 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 12:45:00 PM	1	8270 SIMS PAH only
15	2108721-016A	RCR-SB3 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 12:55:00 PM	1	8270 SIMS PAH only
16	2108721-017A	RCR-SB3 (8')	4OZGU	MeOH (Soil)	8/11/2021 1:00:00 PM	1	8270 SIMS PAH only
17	2108721-018A	RCR-SB4 (0')	4OZGU	MeOH (Soil)	8/11/2021 2:00:00 PM	1	8270 SIMS PAH only
18	2108721-019A	RCR-SB4 (2')	4OZGU	MeOH (Soil)	8/11/2021 2:03:00 PM	1	8270 SIMS PAH only
19	2108721-020A	RCR-SB4 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 2:05:00 PM	1	8270 SIMS PAH only
20	2108721-021A	RCR-SB4 (5')	4OZGU	MeOH (Soil)	8/12/2021 7:40:00 AM	1	8270 SIMS PAH only
21	2108721-022A	RCR-SB4 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 2:15:00 PM	1	8270 SIMS PAH only
22	2108721-023A	RCR-SB4 (8')	4OZGU	MeOH (Soil)	8/11/2021 2:20:00 PM	1	8270 SIMS PAH only
23	2108721-024A	RCR-SB5 (0')	4OZGU	MeOH (Soil)	8/11/2021 3:30:00 PM	1	8270 SIMS PAH only
24	2108721-025A	RCR-SB5 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 3:35:00 PM	1	8270 SIMS PAH only
25	2108721-026A	RCR-SB5 (4')	4OZGU	MeOH (Soil)	8/11/2021 3:40:00 PM	1	8270 SIMS PAH only
26	2108721-027A	RCR-SB5 (5')	4OZGU	MeOH (Soil)	8/11/2021 3:42:00 PM	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/18/2021**	Time: **3:03 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ **RUSH** Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ ℃ Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

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Page 56 of 58

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 3 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
27	2108721-028A	RCR-SB5 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 3:45:00 PM	1	8270 SIMS PAH only
28	2108721-029A	RCR-SB5 (8')	4OZGU	MeOH (Soil)	8/11/2021 3:50:00 PM	1	8270 SIMS PAH only
29	2108721-031A	RCR-SB6 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 4:20:00 PM	1	8270 SIMS PAH only
30	2108721-032A	RCR-SB6 (3')	4OZGU	MeOH (Soil)	8/11/2021 4:25:00 PM	1	8270 SIMS PAH only
31	2108721-033A	RCR-SS1 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:00:00 AM	1	8270 SIMS PAH only
32	2108721-034A	RCR-SS1 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:05:00 AM	1	8270 SIMS PAH only
33	2108721-035A	RCR-SS2 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:10:00 AM	1	8270 SIMS PAH only
34	2108721-036A	RCR-SS2 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:15:00 AM	1	8270 SIMS PAH only
35	2108721-037A	RCR-SS3 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:20:00 AM	1	8270 SIMS PAH only
36	2108721-038A	RCR-SS3 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:25:00 AM	1	8270 SIMS PAH only
37	2108721-039A	RCR-SS4 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:30:00 AM	1	8270 SIMS PAH only
38	2108721-040A	RCR-SS4 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:35:00 AM	1	8270 SIMS PAH only
39	2108721-041A	RCR-SS5 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:40:00 AM	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/18/2021**	Time: **3:03 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ **RUSH** Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ ℃ Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 4 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
40	2108721-042A	RCR-SS5 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:45:00 AM	1	8270 SIMS PAH only
41	2108721-043A	RCR-SS6 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:50:00 AM	1	8270 SIMS PAH only
42	2108721-044A	RCR-SS6 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:55:00 AM	1	8270 SIMS PAH only
43	2108721-045A	RCR-SS7 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 9:10:00 AM	1	8270 SIMS PAH only
44	2108721-046A	RCR-SS7 (1')	4OZGU	MeOH (Soil)	8/12/2021 9:15:00 AM	1	8270 SIMS PAH only
45	2108721-047A	RCR-SS8 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 9:20:00 AM	1	8270 SIMS PAH only
46	2108721-048A	RCR-SS8 (1')	4OZGU	MeOH (Soil)	8/12/2021 9:25:00 AM	1	8270 SIMS PAH only
47	2108721-049A	RCR-SS9 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 9:30:00 AM	1	~~J and MDL~~8270 SIMS PAH only

8/18/21

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/18/2021**	Time: **3:03 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ **RUSH** Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

MBH0767

Due: 09/02/21

Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: FedEx (UPS) USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 3.0 Cooler Temp Corrected (°C): — Thermometer Used: IR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 47				
Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

none

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

VOC 8270 - 5403 x47

Received/Inspected By: CS Date/Time: 08/19/2021 1103

Form F19.00 - Eff 8 Feb 2019

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Hall Environmental Analysis Lab	Work Order:	MBH0853
Address:	4901 Hawkins NE Suite D	Project:	2108721
	Albuquerque, NM 87109	Reported:	9/10/2021 09:19
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2107821-015A (RCR-SB3 (5'))		
Lab/Sample Number:	MBH0853-01	Collect Date:	08/11/21 12:50
Date Received:	08/24/21 12:12	Collected By:	
Matrix:	Solid		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0872	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
2-Methylnaphthalene	0.0545	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Fluorene	0.0149	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Naphthalene	0.0170	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Phenanthrene	0.0330	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Pyrene	0.0153	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*62.9%*		*40-130*	*9/2/21 16:36*	*TGT*	*EPA 8270D*	

Anatek Labs, Inc.
1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report
(Continued)

Sample Location: 2107821-030A (RCR-SB6 (0'))
Lab/Sample Number: MBH0853-02 Collect Date: 08/11/21 16:15
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	90.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	3.62	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
2-Methylnaphthalene	5.50	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Acenaphthene	0.253	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Acenaphthylene	0.0811	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Anthracene	0.0680	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Chrysene	0.0465	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Fluoranthene	0.0280	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Fluorene	0.464	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Naphthalene	0.871	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Phenanthrene	0.634	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Pyrene	0.0963	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.7%*		*40-130*	*9/2/21 16:59*	*TGT*	*EPA 8270D*	

Anatek Labs, Inc.
1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report
(Continued)

Sample Location: 2107821-050A (RCR-SS9 (1'))
Lab/Sample Number: MBH0853-03 Collect Date: 08/11/21 09:35
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.6	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0523	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*53.1%*		*40-130*	*9/2/21 20:55*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-051A (RCR-BD1)
Lab/Sample Number: MBH0853-04 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	12.9	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Acenaphthene	5.29	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Acenaphthylene	1.08	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Anthracene	1.41	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.444	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[a]anthracene	1.56	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[a]pyrene	0.612	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.811	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Chrysene	5.23	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.259	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Fluoranthene	1.39	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Fluorene	6.78	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.189	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Naphthalene	1.14	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Phenanthrene	8.75	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Pyrene	6.49	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*58.3%*		*40-130*	*9/2/21 21:19*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-052A (RCR-BD2)
Lab/Sample Number: MBH0853-05 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	94.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.149	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
2-Methylnaphthalene	0.106	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Acenaphthene	0.0652	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Anthracene	0.0348	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.519	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[a]anthracene	0.543	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[a]pyrene	1.95	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.704	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.148	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Chrysene	2.67	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.271	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Fluoranthene	0.111	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Fluorene	0.0732	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.225	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Naphthalene	0.137	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Phenanthrene	0.148	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Pyrene	2.73	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*89.6%*		*40-130*	*9/2/21 21:42*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-053A (RCR-BD3)
Lab/Sample Number: MBH0853-06 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.5	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	84.2	mg/kg dry	0.248	9/2/21 22:06	TGT	EPA 8270D	
2-Methylnaphthalene	146	mg/kg dry	0.248	9/2/21 22:06	TGT	EPA 8270D	
Acenaphthene	4.28	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Acenaphthylene	2.34	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Anthracene	19.9	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo(g,h,i)perylene	1.02	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[a]anthracene	2.88	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[a]pyrene	2.64	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[b]fluoranthene	1.21	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[k]fluoranthene	1.12	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Chrysene	3.12	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.518	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Fluoranthene	1.29	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Fluorene	0.411	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.340	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Naphthalene	50.6	mg/kg dry	0.248	9/2/21 22:06	TGT	EPA 8270D	
Phenanthrene	16.7	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Pyrene	4.98	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*89.5%*		*40-130*	*9/2/21 22:06*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-054A (RCR-BD4)
Lab/Sample Number: MBH0853-07 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.0	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.332	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
2-Methylnaphthalene	0.534	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Acenaphthene	0.0195	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Fluorene	0.0353	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Naphthalene	0.200	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Phenanthrene	0.106	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Pyrene	0.0266	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.7%*		*40-130*	*9/2/21 17:23*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-055A (RCR-BD5)
Lab/Sample Number: MBH0853-08 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.9	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.143	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
2-Methylnaphthalene	0.221	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0787	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Chrysene	0.102	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Naphthalene	0.0767	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Phenanthrene	0.0605	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Pyrene	0.0530	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*109%*		*40-130*	*9/2/21 22:29*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-056A (RCR-BD6)
Lab/Sample Number: MBH0853-09 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	84.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	13.3	mg/kg dry	0.475	9/2/21 22:53	TGT	EPA 8270D	
2-Methylnaphthalene	21.0	mg/kg dry	0.475	9/2/21 22:53	TGT	EPA 8270D	
Acenaphthene	1.51	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Acenaphthylene	0.779	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Anthracene	4.08	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.126	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[a]anthracene	0.163	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[a]pyrene	0.298	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.164	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.152	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Chrysene	1.07	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0457	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Fluoranthene	0.654	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Fluorene	2.96	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0326	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Naphthalene	14.1	mg/kg dry	0.475	9/2/21 22:53	TGT	EPA 8270D	
Phenanthrene	3.57	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Pyrene	1.97	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*80.2%*		*40-130*	*9/2/21 22:53*	*TGT*	*EPA 8270D*	

Authorized Signature,



Justin Doty For Todd Taruscio, Laboratory Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

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The results reported related only to the samples indicated.

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Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid										
LCS (BBH0797-BS1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.482		0.0100	mg/kg wet	0.500		96.3	32-133		
2-Methylnaphthalene	0.616		0.0100	mg/kg wet	0.500		123	45-138		
1-Methylnaphthalene	0.558		0.0100	mg/kg wet	0.500		112	47-135		
Acenaphthylene	0.589		0.0100	mg/kg wet	0.500		118	48-136		
Acenaphthene	0.451		0.0100	mg/kg wet	0.500		90.1	52-127		
Fluorene	0.572		0.0100	mg/kg wet	0.500		114	56-126		
Phenanthrene	0.536		0.0100	mg/kg wet	0.500		107	69-127		
Anthracene	0.482		0.0100	mg/kg wet	0.500		96.4	32-141		
Fluoranthene	0.478		0.0100	mg/kg wet	0.500		95.7	45-130		
Pyrene	0.459		0.0100	mg/kg wet	0.500		91.8	71-141		
Benzo[a]anthracene	0.472		0.0100	mg/kg wet	0.500		94.4	47-139		
Chrysene	0.462		0.0100	mg/kg wet	0.500		92.3	36-133		
Benzo[b]fluoranthene	0.522		0.0100	mg/kg wet	0.500		104	48-177		
Benzo[k]fluoranthene	0.454		0.0100	mg/kg wet	0.500		90.9	47-169		
Benzo[a]pyrene	0.432		0.0100	mg/kg wet	0.500		86.5	51-155		
Indeno(1,2,3-cd)pyrene	0.363		0.0100	mg/kg wet	0.500		72.6	66-166		
Dibenz(a,h)anthracene	0.502		0.0100	mg/kg wet	0.500		100	57-155		
Benzo(g,h,i)perylene	0.505		0.0100	mg/kg wet	0.500		101	49-165		
Surrogate: Terphenyl-d14			*4.85*	*mg/kg wet*	*5.15*		*94.1*	*40-130*		
LCS Dup (BBH0797-BSD1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.403		0.0100	mg/kg wet	0.500		80.6	32-133	17.7	50
2-Methylnaphthalene	0.484		0.0100	mg/kg wet	0.500		96.9	45-138	23.9	50
1-Methylnaphthalene	0.468		0.0100	mg/kg wet	0.500		93.5	47-135	17.6	50
Acenaphthylene	0.587		0.0100	mg/kg wet	0.500		117	48-136	0.296	50
Acenaphthene	0.447		0.0100	mg/kg wet	0.500		89.3	52-127	0.869	50
Fluorene	0.545		0.0100	mg/kg wet	0.500		109	56-126	4.87	50
Phenanthrene	0.518		0.0100	mg/kg wet	0.500		104	69-127	3.36	50
Anthracene	0.483		0.0100	mg/kg wet	0.500		96.6	32-141	0.189	50
Fluoranthene	0.428		0.0100	mg/kg wet	0.500		85.5	45-130	11.2	50
Pyrene	0.443		0.0100	mg/kg wet	0.500		88.5	71-141	3.60	50
Benzo[a]anthracene	0.464		0.0100	mg/kg wet	0.500		92.8	47-139	1.75	50
Chrysene	0.463		0.0100	mg/kg wet	0.500		92.6	36-133	0.275	50
Benzo[b]fluoranthene	0.534		0.0100	mg/kg wet	0.500		107	48-177	2.37	50
Benzo[k]fluoranthene	0.429		0.0100	mg/kg wet	0.500		85.8	47-169	5.70	50
Benzo[a]pyrene	0.427		0.0100	mg/kg wet	0.500		85.3	51-155	1.34	50
Indeno(1,2,3-cd)pyrene	0.544		0.0100	mg/kg wet	0.500		109	66-166	39.9	50
Dibenz(a,h)anthracene	0.527		0.0100	mg/kg wet	0.500		105	57-155	4.96	50
Benzo(g,h,i)perylene	0.531		0.0100	mg/kg wet	0.500		106	49-165	5.04	50
Surrogate: Terphenyl-d14			*4.16*	*mg/kg wet*	*5.15*		*80.8*	*40-130*		

Anatek Labs, Inc.
1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid (Continued)										
Matrix Spike (BBH0797-MS1)	**Source: MBH0767-41**			Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.440		0.0128	mg/kg dry	0.642	ND	68.5	30-140		
2-Methylnaphthalene	0.558		0.0128	mg/kg dry	0.642	0.00707	85.8	30-140		
1-Methylnaphthalene	0.530		0.0128	mg/kg dry	0.642	0.00848	81.4	30-140		
Acenaphthylene	0.557		0.0128	mg/kg dry	0.642	ND	86.8	30-140		
Acenaphthene	0.501		0.0128	mg/kg dry	0.642	ND	78.0	30-140		
Fluorene	0.560		0.0128	mg/kg dry	0.642	ND	87.4	30-140		
Phenanthrene	0.408		0.0128	mg/kg dry	0.642	0.0107	61.9	30-140		
Anthracene	0.457		0.0128	mg/kg dry	0.642	ND	71.2	30-140		
Fluoranthene	0.509		0.0128	mg/kg dry	0.642	ND	79.4	30-140		
Pyrene	0.625		0.0128	mg/kg dry	0.642	0.0305	92.6	30-140		
Benzo[a]anthracene	0.517		0.0128	mg/kg dry	0.642	ND	80.6	30-140		
Chrysene	0.575		0.0128	mg/kg dry	0.642	0.0198	86.6	30-140		
Benzo[b]fluoranthene	0.488		0.0128	mg/kg dry	0.642	ND	76.1	30-140		
Benzo[k]fluoranthene	0.478		0.0128	mg/kg dry	0.642	ND	74.5	30-140		
Benzo[a]pyrene	0.436		0.0128	mg/kg dry	0.642	ND	68.0	30-140		
Indeno(1,2,3-cd)pyrene	0.477		0.0128	mg/kg dry	0.642	ND	74.3	30-140		
Dibenz(a,h)anthracene	0.497		0.0128	mg/kg dry	0.642	ND	77.5	30-140		
Benzo(g,h,i)perylene	0.478		0.0128	mg/kg dry	0.642	ND	74.6	30-140		
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		
Matrix Spike Dup (BBH0797-MSD1)	**Source: MBH0767-41**			Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.419		0.0128	mg/kg dry	0.642	ND	65.3	30-140	4.86	50
2-Methylnaphthalene	0.499		0.0128	mg/kg dry	0.642	0.00707	76.7	30-140	11.1	50
1-Methylnaphthalene	0.487		0.0128	mg/kg dry	0.642	0.00848	74.6	30-140	8.53	50
Acenaphthylene	0.550		0.0128	mg/kg dry	0.642	ND	85.8	30-140	1.26	50
Acenaphthene	0.446		0.0128	mg/kg dry	0.642	ND	69.6	30-140	11.5	50
Fluorene	0.554		0.0128	mg/kg dry	0.642	ND	86.4	30-140	1.09	50
Phenanthrene	0.363		0.0128	mg/kg dry	0.642	0.0107	54.8	30-140	11.8	50
Anthracene	0.472		0.0128	mg/kg dry	0.642	ND	73.6	30-140	3.25	50
Fluoranthene	0.507		0.0128	mg/kg dry	0.642	ND	79.1	30-140	0.369	50
Pyrene	0.520		0.0128	mg/kg dry	0.642	0.0305	76.4	30-140	18.2	50
Benzo[a]anthracene	0.487		0.0128	mg/kg dry	0.642	ND	75.9	30-140	6.01	50
Chrysene	0.475		0.0128	mg/kg dry	0.642	0.0198	70.9	30-140	19.2	50
Benzo[b]fluoranthene	0.444		0.0128	mg/kg dry	0.642	ND	69.3	30-140	9.41	50
Benzo[k]fluoranthene	0.441		0.0128	mg/kg dry	0.642	ND	68.8	30-140	7.91	50
Benzo[a]pyrene	0.370		0.0128	mg/kg dry	0.642	ND	57.8	30-140	16.3	50
Indeno(1,2,3-cd)pyrene	0.449		0.0128	mg/kg dry	0.642	ND	70.0	30-140	5.98	50
Dibenz(a,h)anthracene	0.448		0.0128	mg/kg dry	0.642	ND	69.9	30-140	10.3	50
Benzo(g,h,i)perylene	0.436		0.0128	mg/kg dry	0.642	ND	67.9	30-140	9.37	50
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory

MBH0853

Due: 09/08/21

SUB CONTRATOR:	**Anatek ID**	COMPANY:	**Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX:
ADDRESS:	**1282 Alturas Dr**			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	**Moscow, ID 83843**				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108721-015A	RCR-SB3 (5')	4OZGU	MeOH (Soil)	8/11/2021 12:50:00 PM	1	8270 SIMS PAH only
2	2108721-030A	RCR-SB6 (0')	4OZGU	MeOH (Soil)	8/11/2021 4:15:00 PM	1	8270 SIMS PAH only
3	2108721-050A	RCR-SS9 (1')	4OZGU	MeOH (Soil)	8/12/2021 9:35:00 AM	1	8270 SIMS PAH only
4	2108721-051A	RCR-BD1	4OZGU	MeOH (Soil)	8/11/2021	1	8270 SIMS PAH only
5	2108721-052A	RCR-BD2	4OZGU	MeOH (Soil)	8/11/2021	1	8270 SIMS PAH only
6	2108721-053A	RCR-BD3	4OZGU	MeOH (Soil)	8/11/2021	1	8270 SIMS PAH only
7	2108721-054A	RCR-BD4	4OZGU	MeOH (Soil)	8/12/2021	1	8270 SIMS PAH only
8	2108721-055A	RCR-BD5	4OZGU	MeOH (Soil)	8/12/2021	1	8270 SIMS PAH only
9	2108721-056A	RCR-BD6	4OZGU	MeOH (Soil)	8/12/2021	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/23/2021**	Time: **2:43 PM**	Received By:	Date: 8/24/21	Time: 1210
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

MBH0853

Due: 09/08/21

Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: (1) Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 0.9 Cooler Temp Corrected (°C): — Thermometer Used: DT5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 9				
Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

None

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8270 - 9 4oz x 9

Received/Inspected By: CS Date/Time: 08/24/2021 1212

Form F19.00 - Eff 8 Feb 2019

Page 1 of 1

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62061** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62061** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849840** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.20								
Cadmium	ND	0.20								
Selenium	ND	0.20								
Silver	ND	0.20								

Sample ID: **MSLLLCS-62061** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62061** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.088	0.20	0.1000	0	88.4	70	130			J
Cadmium	0.091	0.20	0.1000	0	91.4	70	130			J
Selenium	0.11	0.20	0.1000	0	109	70	130			J
Silver	0.12	0.20	0.1000	0	118	70	130			J

Sample ID: **MSLCS-62061** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62061** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849842** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	4.6	0.20	5.000	0	91.3	80	120			
Cadmium	4.4	0.20	5.000	0	88.6	80	120			
Selenium	4.5	0.20	5.000	0	90.0	80	120			
Silver	2.6	0.20	2.500	0	103	80	120			

Sample ID: **MB-62062** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62062** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849845** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.20								
Barium	ND	0.20								
Cadmium	ND	0.20								
Chromium	ND	0.20								
Selenium	ND	0.20								
Silver	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MSLLLCS-62062** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62062** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849846** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.085	0.20	0.1000	0	85.5	70	130			J
Barium	0.13	0.20	0.1000	0	125	70	130			J
Cadmium	0.084	0.20	0.1000	0	83.9	70	130			J
Chromium	0.13	0.20	0.1000	0	127	70	130			J
Selenium	0.10	0.20	0.1000	0	99.7	70	130			J
Silver	0.12	0.20	0.1000	0	119	70	130			J

Sample ID: **MSLCS-62062** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62062** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849847** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	4.7	0.20	5.000	0	94.2	80	120			
Barium	5.2	0.20	5.000	0	104	80	120			
Cadmium	4.3	0.20	5.000	0	85.1	80	120			
Chromium	5.0	0.20	5.000	0	101	80	120			
Selenium	4.6	0.20	5.000	0	92.1	80	120			
Silver	2.5	0.20	2.500	0	101	80	120			

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849851** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849852** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.11	0.20	0.1000	0	113	70	130			J

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849853** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	2.4	0.20	2.500	0	95.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62061** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62061** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851331** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.20								
Chromium	ND	0.20								

Sample ID: **MSLCS-62061** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62061** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851333** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	5.0	0.20	5.000	0	99.6	80	120			
Chromium	5.0	0.20	5.000	0	99.3	80	120			

Sample ID: **MB-62062** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62062** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851334** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.20								

Sample ID: **MSLLLCS-62062** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62062** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851335** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.13	0.20	0.1000	0	130	70	130			J

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851337** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.20								
Cadmium	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851338** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.10	0.20	0.1000	0	103	70	130			J
Cadmium	0.079	0.20	0.1000	0	79.1	70	130			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**

13-Sep-21

Client: Marathon

Project: Railcar Release Investigation

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851339** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	4.1	0.20	5.000	0	81.5	80	120			
Cadmium	4.1	0.20	5.000	0	81.5	80	120			

Sample ID: **MSLCS-62062** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62062** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851345** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	5.9	0.50	5.000	0	118	80	120			

Sample ID: **MSLLLCS-62061** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62061** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851348** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.13	0.20	0.1000	0	129	70	130			J
Chromium	0.22	0.20	0.1000	0	221	70	130			S

Sample ID: **MB-62061** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62061** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852735** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.20								

Sample ID: **MSLLLCS-62061** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62061** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852736** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.12	0.20	0.1000	0	115	70	130			J

Sample ID: **MSLCS-62061** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62061** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852737** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	5.7	0.20	5.000	0	114	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852741** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852742** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.10	0.20	0.1000	0	103	70	130			J

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852743** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	4.9	0.20	5.000	0	97.3	80	120			

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80870**
Prep Date: **8/18/2021** Analysis Date: **8/27/2021** SeqNo: **2853691** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.20								
Lead	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80870**
Prep Date: **8/18/2021** Analysis Date: **8/27/2021** SeqNo: **2853692** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.11	0.20	0.1000	0	105	70	130			J
Lead	0.11	0.20	0.1000	0	107	70	130			J

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80870**
Prep Date: **8/18/2021** Analysis Date: **8/27/2021** SeqNo: **2853693** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	5.1	0.20	5.000	0	102	80	120			
Lead	5.1	0.20	5.000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-021AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB4 (5')** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842396** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	61	9.9	49.60	0	123	15	184			
Surr: DNOP	4.8		4.960		97.3	70	130			

Sample ID: **2108721-021AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB4 (5')** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842397** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	9.7	48.40	0	108	15	184	15.0	23.9	
Surr: DNOP	4.5		4.840		93.1	70	130	0	0	

Sample ID: **LCS-62000** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842403** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	103	68.9	141			
Surr: DNOP	4.5		5.000		90.9	70	130			

Sample ID: **MB-62000** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842405** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		105	70	130			

Sample ID: **LCS-61999** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **61999** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2843603** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.3	68.9	141			
Surr: DNOP	4.6		5.000		92.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-61999** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **61999** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2843604** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	70	130			

Sample ID: **MB-62016** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **62016** RunNo: **80624**
Prep Date: **8/17/2021** Analysis Date: **8/18/2021** SeqNo: **2844796** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		110	70	130			

Sample ID: **LCS-62016** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **62016** RunNo: **80624**
Prep Date: **8/17/2021** Analysis Date: **8/18/2021** SeqNo: **2844799** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	68.9	141			
Surr: DNOP	5.1		5.000		103	70	130			

Sample ID: **2108721-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80623**
Prep Date: **8/16/2021** Analysis Date: **8/18/2021** SeqNo: **2845306** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	68	47	46.64	0	145	15	184			
Surr: DNOP	6.2		4.664		134	70	130			S

Sample ID: **2108721-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80623**
Prep Date: **8/16/2021** Analysis Date: **8/18/2021** SeqNo: **2845307** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	71	47	46.86	0	152	15	184	5.43	23.9	
Surr: DNOP	5.9		4.686		126	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80691**
Prep Date: **8/16/2021** Analysis Date: **8/20/2021** SeqNo: **2847604** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	67	9.3	46.64	36.69	65.2	15	184			
Surr: DNOP	5.3		4.664		114	70	130			

Sample ID: **2108721-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80691**
Prep Date: **8/16/2021** Analysis Date: **8/20/2021** SeqNo: **2847605** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	9.4	46.86	36.69	53.7	15	184	8.78	23.9	
Surr: DNOP	5.3		4.686		113	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841731** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	112	70	130			
Toluene	1.0	0.050	1.000	0	102	70	130			
Chlorobenzene	0.97	0.050	1.000	0	97.1	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	105	70	130			
Trichloroethene (TCE)	1.1	0.050	1.000	0	107	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.9	70	130			
Surr: Toluene-d8	0.48		0.5000		95.6	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.4	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841732** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80534**	RunNo: **80534**
Prep Date:	Analysis Date: **8/16/2021**	SeqNo: **2841732** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841732** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.48		0.5000		96.6	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.0	70	130			

Sample ID: **2108721-002ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (2.5')** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841735** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.019	0.7728	0.01124	111	70	130			
Toluene	0.77	0.039	0.7728	0	100	70	130			
Chlorobenzene	0.75	0.039	0.7728	0	96.7	70	130			
1,1-Dichloroethene	0.79	0.039	0.7728	0	103	49.9	132			
Trichloroethene (TCE)	0.82	0.039	0.7728	0	106	52.9	126			
Surr: Dibromofluoromethane	0.43		0.3864		113	70	130			
Surr: 1,2-Dichloroethane-d4	0.40		0.3864		103	70	130			
Surr: Toluene-d8	0.38		0.3864		99.2	70	130			
Surr: 4-Bromofluorobenzene	0.37		0.3864		95.0	70	130			

Sample ID: **2108721-002amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (2.5')** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841736** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.019	0.7728	0.01124	106	70	130	4.81	20	
Toluene	0.73	0.039	0.7728	0	94.4	70	130	5.90	20	
Chlorobenzene	0.71	0.039	0.7728	0	91.5	70	130	5.53	20	
1,1-Dichloroethene	0.75	0.039	0.7728	0	96.4	49.9	132	6.18	20	
Trichloroethene (TCE)	0.78	0.039	0.7728	0	100	52.9	126	5.68	20	
Surr: Dibromofluoromethane	0.44		0.3864		113	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.40		0.3864		104	70	130	0	0	
Surr: Toluene-d8	0.37		0.3864		95.9	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.37		0.3864		94.7	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843106** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	110	70	130			
Toluene	1.0	0.050	1.000	0	102	70	130			
Chlorobenzene	1.0	0.050	1.000	0	100	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	105	70	130			
Trichloroethene (TCE)	1.0	0.050	1.000	0	100	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		105	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.9	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843107** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80598**	RunNo: **80598**
Prep Date:	Analysis Date: **8/17/2021**	SeqNo: **2843107** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843107** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.54		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.4	70	130			

Sample ID: **2108721-016ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB3 (7.5')** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843116** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.019	0.7770	0.1404	104	70	130			
Toluene	0.79	0.039	0.7770	0	102	70	130			
Chlorobenzene	0.77	0.039	0.7770	0	99.2	70	130			
1,1-Dichloroethene	0.77	0.039	0.7770	0	99.2	49.9	132			
Trichloroethene (TCE)	0.71	0.039	0.7770	0	92.0	52.9	126			
Surr: Dibromofluoromethane	0.38		0.3885		98.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.37		0.3885		96.3	70	130			
Surr: Toluene-d8	0.39		0.3885		101	70	130			
Surr: 4-Bromofluorobenzene	0.34		0.3885		88.5	70	130			

Sample ID: **2108721-016amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB3 (7.5')** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843117** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.019	0.7770	0.1404	94.0	70	130	8.80	20	
Toluene	0.73	0.039	0.7770	0	93.5	70	130	8.73	20	
Chlorobenzene	0.70	0.039	0.7770	0	89.6	70	130	10.1	20	
1,1-Dichloroethene	0.72	0.039	0.7770	0	92.3	49.9	132	7.25	20	
Trichloroethene (TCE)	0.69	0.039	0.7770	0	88.3	52.9	126	4.06	20	
Surr: Dibromofluoromethane	0.39		0.3885		99.8	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.39		0.3885		101	70	130	0	0	
Surr: Toluene-d8	0.39		0.3885		100	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.35		0.3885		91.1	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844858** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	112	70	130			
Toluene	1.0	0.050	1.000	0	101	70	130			
Chlorobenzene	0.99	0.050	1.000	0	98.9	70	130			
1,1-Dichloroethene	1.1	0.050	1.000	0	106	70	130			
Trichloroethene (TCE)	1.0	0.050	1.000	0	103	70	130			
Surr: Dibromofluoromethane	0.56		0.5000		112	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.9	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844859** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80646**	RunNo: **80646**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844859** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844859** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.5000		90.8	70	130			

Sample ID: **2108721-029ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB5 (8')** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844864** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.9	0.080	3.218	1.447	108	70	130			
Toluene	3.5	0.16	3.218	0.1958	103	70	130			
Chlorobenzene	3.3	0.16	3.218	0	103	70	130			
1,1-Dichloroethene	3.2	0.16	3.218	0	101	49.9	132			
Trichloroethene (TCE)	3.0	0.16	3.218	0	93.7	52.9	126			
Surr: Dibromofluoromethane	1.6		1.609		98.3	70	130			
Surr: 1,2-Dichloroethane-d4	1.6		1.609		102	70	130			
Surr: Toluene-d8	1.6		1.609		102	70	130			
Surr: 4-Bromofluorobenzene	1.4		1.609		88.3	70	130			

Sample ID: **2108721-029amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB5 (8')** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844865** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.6	0.080	3.218	1.447	97.8	70	130	7.13	20	
Toluene	3.2	0.16	3.218	0.1958	94.9	70	130	7.39	20	
Chlorobenzene	3.1	0.16	3.218	0	95.3	70	130	8.06	20	
1,1-Dichloroethene	3.0	0.16	3.218	0	93.8	49.9	132	7.15	20	
Trichloroethene (TCE)	2.8	0.16	3.218	0	88.5	52.9	126	5.74	20	
Surr: Dibromofluoromethane	1.5		1.609		94.9	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	1.6		1.609		100	70	130	0	0	
Surr: Toluene-d8	1.6		1.609		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.5		1.609		90.9	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846468** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	114	70	130			
Toluene	1.0	0.050	1.000	0	103	70	130			
Chlorobenzene	1.0	0.050	1.000	0	102	70	130			
1,1-Dichloroethene	1.1	0.050	1.000	0	107	70	130			
Trichloroethene (TCE)	1.0	0.050	1.000	0	102	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		104	70	130			
Surr: Toluene-d8	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.6	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846469** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80682**	RunNo: **80682**
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846469** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846469** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.56		0.5000		112	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.53		0.5000		106	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.5	70	130			

Sample ID: **2108721-051ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-BD1** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846485** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.086	3.460	0.3166	110	70	130			
Toluene	3.7	0.17	3.460	0	107	70	130			
Chlorobenzene	3.6	0.17	3.460	0	104	70	130			
1,1-Dichloroethene	3.6	0.17	3.460	0	104	49.9	132			
Trichloroethene (TCE)	3.3	0.17	3.460	0	96.4	52.9	126			
Surr: Dibromofluoromethane	1.7		1.730		101	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		1.730		106	70	130			
Surr: Toluene-d8	1.9		1.730		108	70	130			
Surr: 4-Bromofluorobenzene	1.5		1.730		89.3	70	130			

Sample ID: **2108721-051amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-BD1** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846486** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.9	0.086	3.460	0.3166	103	70	130	5.97	20	
Toluene	3.4	0.17	3.460	0	97.6	70	130	9.32	20	
Chlorobenzene	3.3	0.17	3.460	0	95.6	70	130	8.84	20	
1,1-Dichloroethene	3.4	0.17	3.460	0	97.0	49.9	132	7.37	20	
Trichloroethene (TCE)	3.2	0.17	3.460	0	92.2	52.9	126	4.49	20	
Surr: Dibromofluoromethane	1.7		1.730		101	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	1.8		1.730		104	70	130	0	0	
Surr: Toluene-d8	1.8		1.730		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.5		1.730		87.8	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **R80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848398** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Chlorobenzene	1.0	0.050	1.000	0	100	70	130			
1,1-Dichloroethene	0.94	0.050	1.000	0	94.5	70	130			
Trichloroethene (TCE)	0.91	0.050	1.000	0	91.2	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		109	70	130			

Sample ID: **2108721-004ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (5')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848403** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.024	0.9625	0.1021	79.5	70	130			
Toluene	0.91	0.048	0.9625	0.05729	89.1	70	130			
Chlorobenzene	0.86	0.048	0.9625	0	89.8	70	130			
1,1-Dichloroethene	0.79	0.048	0.9625	0	81.6	49.9	132			
Trichloroethene (TCE)	0.74	0.048	0.9625	0	76.7	52.9	126			
Surr: Dibromofluoromethane	0.44		0.4812		90.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.4812		97.2	70	130			
Surr: Toluene-d8	0.49		0.4812		102	70	130			
Surr: 4-Bromofluorobenzene	0.57		0.4812		119	70	130			

Sample ID: **2108721-004amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (5')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848404** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9737	0.1021	83.8	70	130	5.68	20	
Toluene	0.96	0.049	0.9737	0.05729	93.1	70	130	5.16	20	
Chlorobenzene	0.88	0.049	0.9737	0	90.8	70	130	2.23	20	
1,1-Dichloroethene	0.79	0.049	0.9737	0	81.2	49.9	132	0.664	20	
Trichloroethene (TCE)	0.77	0.049	0.9737	0	78.9	52.9	126	3.88	20	
Surr: Dibromofluoromethane	0.45		0.4869		93.1	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.48		0.4869		97.9	70	130	0	0	
Surr: Toluene-d8	0.51		0.4869		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.66		0.4869		135	70	130	0	0	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62009** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848411** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.4	70	130			
Toluene	1.0	0.050	1.000	0	104	70	130			
Chlorobenzene	1.0	0.050	1.000	0	100	70	130			
1,1-Dichloroethene	0.96	0.050	1.000	0	95.6	70	130			
Trichloroethene (TCE)	0.89	0.050	1.000	0	89.5	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		91.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.5	70	130			
Surr: Toluene-d8	0.49		0.5000		98.3	70	130			
Surr: 4-Bromofluorobenzene	0.58		0.5000		115	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **R80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848412** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **R80737**	RunNo: **80737**
Prep Date:	Analysis Date: **8/24/2021**	SeqNo: **2848412** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **R80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848412** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.47		0.5000		94.1	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.55		0.5000		111	70	130			

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.43		0.5000		85.7	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.8	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.57		0.5000		113	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng 8260 lcs2** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **B80573** RunNo: **80573**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843032** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	25	1.0	20.00	0	123	70	130			
Toluene	23	1.0	20.00	0	117	70	130			
Chlorobenzene	23	1.0	20.00	0	114	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	112	70	130			
Trichloroethene (TCE)	23	1.0	20.00	0	114	70	130			
Surr: 1,2-Dichloroethane-d4	8.7		10.00		86.7	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.1	70	130			
Surr: Toluene-d8	9.4		10.00		94.4	70	130			

Sample ID: **mb2** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **B80573** RunNo: **80573**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2843033** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **B80573**	RunNo: **80573**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2843033** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **B80573**	RunNo: **80573**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2843033** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.0		10.00		89.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.9	70	130			
Surr: Dibromofluoromethane	9.0		10.00		89.6	70	130			
Surr: Toluene-d8	9.5		10.00		94.7	70	130			

Sample ID: **100ng 8260 lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R80607**	RunNo: **80607**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2843673** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	96.9	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.6	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		83.1	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	8.6		10.00		86.4	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80607**	RunNo: **80607**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80607**	RunNo: **80607**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80607**	RunNo: **80607**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.2		10.00		81.8	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			
Surr: Dibromofluoromethane	8.4		10.00		84.4	70	130			
Surr: Toluene-d8	9.3		10.00		93.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-61996**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**							
Client ID: **PBS**	Batch ID: **61996**	RunNo: **80749**							
Prep Date: **8/16/2021**	Analysis Date: **8/23/2021**	SeqNo: **2848809**	Units: **mg/Kg**						

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.31	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-61996** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **61996** RunNo: **80749**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848809** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.8		3.330		83.9	20.3	74.1			S
Surr: Phenol-d5	3.5		3.330		105	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	3.0		3.330		88.9	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		73.8	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		85.8	21.5	90.1			
Surr: 4-Terphenyl-d14	1.9		1.670		113	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **LCS-61996** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **61996** RunNo: **80749**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848810** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.6	0.20	1.670	0	96.5	22.9	109			
4-Chloro-3-methylphenol	3.0	0.50	3.330	0	89.8	24.2	109			
2-Chlorophenol	2.9	0.20	3.330	0	86.1	18.8	103			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	73.3	18.8	89.5			
2,4-Dinitrotoluene	1.3	0.50	1.670	0	77.6	20.2	94.5			
N-Nitrosodi-n-propylamine	1.4	0.20	1.670	0	84.8	19.2	96.9			
4-Nitrophenol	3.3	0.25	3.330	0	99.6	25	118			
Pentachlorophenol	2.7	0.40	3.330	0	82.2	24.1	107			
Phenol	3.2	0.20	3.330	0	95.0	17.8	112			
Pyrene	1.6	0.20	1.670	0	94.6	25.9	125			
1,2,4-Trichlorobenzene	1.4	0.20	1.670	0	81.8	18.5	92.8			
Surr: 2-Fluorophenol	2.5		3.330		75.4	20.3	74.1			S
Surr: Phenol-d5	3.1		3.330		93.2	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	3.1		3.330		92.7	17.3	122			
Surr: Nitrobenzene-d5	1.4		1.670		81.7	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.5		1.670		92.6	21.5	90.1			S
Surr: 4-Terphenyl-d14	1.7		1.670		99.9	15	140			

Sample ID: **MB-62017** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848811** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62017** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848811** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62017** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848811** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.2		3.330		66.5	20.3	74.1			
Surr: Phenol-d5	2.6		3.330		78.9	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.7		3.330		81.1	17.3	122			
Surr: Nitrobenzene-d5	1.1		1.670		64.9	24.7	73.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		74.7	21.5	90.1			
Surr: 4-Terphenyl-d14	1.5		1.670		89.1	15	140			

Sample ID: **LCS-62017** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	81.2	22.9	109			
4-Chloro-3-methylphenol	2.5	0.50	3.330	0	76.3	24.2	109			
2-Chlorophenol	2.6	0.20	3.330	0	76.7	18.8	103			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	69.5	18.8	89.5			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	65.1	20.2	94.5			
N-Nitrosodi-n-propylamine	1.2	0.20	1.670	0	72.2	19.2	96.9			
4-Nitrophenol	3.0	0.25	3.330	0	88.6	25	118			
Pentachlorophenol	2.6	0.40	3.330	0	79.1	24.1	107			
Phenol	2.8	0.20	3.330	0	83.3	17.8	112			
Pyrene	1.5	0.20	1.670	0	90.5	25.9	125			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	69.0	18.5	92.8			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **LCS-62017** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	2.3		3.330		68.6	20.3	74.1			
Surr: Phenol-d5	2.7		3.330		80.7	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.7		3.330		82.4	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		69.9	24.7	73.2			
Surr: 2-Fluorobiphenyl	1.3		1.670		75.5	21.5	90.1			
Surr: 4-Terphenyl-d14	1.5		1.670		90.8	15	140			

Sample ID: **2108721-021AMS** SampType: **MS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **RCR-SB4 (5')** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848823** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.67	0.19	1.563	0	42.6	24.8	111			
4-Chloro-3-methylphenol	1.5	0.47	3.116	0	47.4	40.7	97.8			
2-Chlorophenol	1.5	0.19	3.116	0	47.8	21.2	91.6			
1,4-Dichlorobenzene	0.38	0.19	1.563	0	24.1	17.8	74.2			
2,4-Dinitrotoluene	0.34	0.47	1.563	0	21.7	36.5	81.5			JS
N-Nitrosodi-n-propylamine	0.67	0.19	1.563	0	43.0	25.5	85.2			
4-Nitrophenol	2.0	0.23	3.116	0	64.8	15	143			
Pentachlorophenol	2.3	0.37	3.116	0	72.8	15	116			
Phenol	1.6	0.19	3.116	0	50.7	24.8	94.5			
Pyrene	1.1	0.19	1.563	0	72.2	42	112			
1,2,4-Trichlorobenzene	0.50	0.19	1.563	0	31.7	18.5	85.3			
Surr: 2-Fluorophenol	1.3		3.116		42.1	20.3	74.1			
Surr: Phenol-d5	1.5		3.116		49.6	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.0		3.116		65.7	17.3	122			
Surr: Nitrobenzene-d5	0.36		1.563		23.0	24.7	73.2			S
Surr: 2-Fluorobiphenyl	0.62		1.563		39.9	21.5	90.1			
Surr: 4-Terphenyl-d14	1.5		1.563		94.6	15	140			

Sample ID: **2108721-021AMSD** SampType: **MSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **RCR-SB4 (5')** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.67	0.19	1.597	0	42.0	24.8	111	0.762	20	
4-Chloro-3-methylphenol	1.5	0.48	3.185	0	45.9	40.7	97.8	1.01	20	
2-Chlorophenol	1.5	0.19	3.185	0	45.9	21.2	91.6	1.71	20	
1,4-Dichlorobenzene	0.39	0.19	1.597	0	24.3	17.8	74.2	2.83	20	
2,4-Dinitrotoluene	0.34	0.48	1.597	0	21.2	36.5	81.5	0.337	20	JS

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-021AMSD** SampType: **MSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **RCR-SB4 (5')** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	0.66	0.19	1.597	0	41.5	25.5	85.2	1.58	20	
4-Nitrophenol	2.0	0.24	3.185	0	62.0	15	143	2.34	20	
Pentachlorophenol	2.3	0.38	3.185	0	71.0	15	116	0.316	20	
Phenol	1.5	0.19	3.185	0	47.4	24.8	94.5	4.69	20	
Pyrene	1.3	0.19	1.597	0	82.0	42	112	14.9	20	
1,2,4-Trichlorobenzene	0.54	0.19	1.597	0	34.0	18.5	85.3	9.17	20	
Surr: 2-Fluorophenol	1.3		3.185		42.0	20.3	74.1	0	0	
Surr: Phenol-d5	1.5		3.185		47.3	23.1	92.7	0	0	
Surr: 2,4,6-Tribromophenol	1.9		3.185		60.6	17.3	122	0	0	
Surr: Nitrobenzene-d5	0.33		1.597		20.8	24.7	73.2	0	0	S
Surr: 2-Fluorobiphenyl	0.58		1.597		36.6	21.5	90.1	0	0	
Surr: 4-Terphenyl-d14	1.5		1.597		95.4	15	140	0	0	

Sample ID: **mb-62052** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62052** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62052** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.7		3.330		80.0	20.3	74.1			S
Surr: Phenol-d5	3.2		3.330		95.9	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	2.8		3.330		84.2	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		74.9	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.5		1.670		88.0	21.5	90.1			
Surr: 4-Terphenyl-d14	2.2		1.670		130	15	140			

Sample ID: **lcs-62052** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850039** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.5	0.20	1.670	0	90.9	22.9	109			
4-Chloro-3-methylphenol	2.8	0.50	3.330	0	84.8	24.2	109			
2-Chlorophenol	2.9	0.20	3.330	0	86.9	18.8	103			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	68.9	18.8	89.5			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	73.3	20.2	94.5			
N-Nitrosodi-n-propylamine	1.4	0.20	1.670	0	81.8	19.2	96.9			
4-Nitrophenol	3.2	0.25	3.330	0	95.7	25	118			
Pentachlorophenol	2.6	0.40	3.330	0	78.1	24.1	107			
Phenol	3.1	0.20	3.330	0	94.3	17.8	112			
Pyrene	1.6	0.20	1.670	0	97.8	25.9	125			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	73.6	18.5	92.8			
Surr: 2-Fluorophenol	2.4		3.330		73.2	20.3	74.1			
Surr: Phenol-d5	3.1		3.330		93.2	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	3.0		3.330		88.9	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		76.1	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		86.2	21.5	90.1			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62052** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850039** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	2.1		1.670		128	15	140			

Sample ID: **mb-62082** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62082** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62082** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	2.3		3.330		70.2	20.3	74.1			
Surr: Phenol-d5	2.8		3.330		85.0	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.6		3.330		78.3	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		70.2	24.7	73.2			
Surr: 2-Fluorobiphenyl	1.4		1.670		81.3	21.5	90.1			
Surr: 4-Terphenyl-d14	1.6		1.670		95.3	15	140			

Sample ID: **lcs-62082** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850041** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	84.9	22.9	109			
4-Chloro-3-methylphenol	2.6	0.50	3.330	0	78.2	24.2	109			
2-Chlorophenol	2.7	0.20	3.330	0	80.8	18.8	103			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	70.5	18.8	89.5			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	69.4	20.2	94.5			
N-Nitrosodi-n-propylamine	1.3	0.20	1.670	0	75.7	19.2	96.9			
4-Nitrophenol	3.1	0.25	3.330	0	92.8	25	118			
Pentachlorophenol	2.5	0.40	3.330	0	74.4	24.1	107			
Phenol	2.9	0.20	3.330	0	86.0	17.8	112			
Pyrene	1.6	0.20	1.670	0	94.5	25.9	125			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	76.3	18.5	92.8			
Surr: 2-Fluorophenol	2.4		3.330		72.0	20.3	74.1			
Surr: Phenol-d5	2.8		3.330		85.0	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.8		3.330		84.6	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		75.2	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		81.8	21.5	90.1			
Surr: 4-Terphenyl-d14	1.7		1.670		100	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62142** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851078** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-62142** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851079** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0075	0.033	0.006660	0	112	70	130			J

Sample ID: **LCS-61242** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851080** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	97.9	80	120			

Sample ID: **MB-61243** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851081** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-61243** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0074	0.033	0.006660	0	110	70	130			J

Sample ID: **LCS-61243** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851083** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**

13-Sep-21

Client: Marathon

Project: Railcar Release Investigation

Sample ID: **MB-61244** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851084** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-61244** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851085** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0070	0.033	0.006660	0	105	70	130			J

Sample ID: **LCS-61244** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851086** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	101	80	120			

Sample ID: **2108721-002AMS** SampType: **MS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB1 (2.5')** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851164** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.37	0.17	0.1720	0.03518	194	80	120			S

Sample ID: **2108721-002AMSD** SampType: **MSD** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB1 (2.5')** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851165** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.60	0.18	0.1783	0.03518	316	80	120	47.6	20	RS

Sample ID: **2108721-025AMS** SampType: **MS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB5 (2.5')** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851167** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.35	0.16	0.1621	0.1421	128	80	120			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-025AMSD** SampType: **MSD** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB5 (2.5')** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851168** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.30	0.18	0.1779	0.1421	90.0	80	120	14.5	20	

Sample ID: **2108721-045AMS** SampType: **MS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SS7 (0.5')** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851170** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.38	0.16	0.1569	0.1030	174	80	120			S

Sample ID: **2108721-045AMSD** SampType: **MSD** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SS7 (0.5')** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851173** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.35	0.16	0.1606	0.1030	155	80	120	6.39	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2.5ug gro lcs 2** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841781** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.4	70	130			
Surr: BFB	480		500.0		95.6	70	130			

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841782** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.3	70	130			
Surr: BFB	490		500.0		97.8	70	130			

Sample ID: **mb 2** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2841783** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		98.0	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841784** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		97.4	70	130			

Sample ID: **2108721-001ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (0')** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841786** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.4	21.99	0	97.8	64.4	124			
Surr: BFB	430		439.8		97.2	70	130			

Sample ID: **2108721-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (0')** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841787** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (0')** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841787** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.4	21.99	0	92.3	64.4	124	5.81	20	
Surr: BFB	430		439.8		97.6	70	130	0	0	

Sample ID: **2108721-024ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (0')** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2841808** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.6	23.19	0	91.0	64.4	124			
Surr: BFB	430		463.8		93.0	70	130			

Sample ID: **2108721-024amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (0')** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2841809** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.6	23.19	0	87.1	64.4	124	4.36	20	
Surr: BFB	450		463.8		96.1	70	130	0	0	

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **G80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843168** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.9	70	130			
Surr: BFB	470		500.0		94.3	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **G80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843169** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		98.7	70	130			

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844924** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844924** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.9	70	130			
Surr: BFB	470		500.0		93.4	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844925** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	470		500.0		93.6	70	130			

Sample ID: **2108721-028ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (7.5')** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844928** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	340	16	81.06	268.7	90.5	64.4	124			
Surr: BFB	1500		1621		93.9	70	130			

Sample ID: **2108721-028amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (7.5')** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844929** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	330	16	81.06	268.7	76.6	64.4	124	3.35	20	
Surr: BFB	1500		1621		93.6	70	130	0	0	

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846496** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.4	70	130			
Surr: BFB	480		500.0		95.8	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846497** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846497** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		96.8	70	130			

Sample ID: **2108721-050ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SS9 (1')** Batch ID: **B80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846501** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	3.9	19.34	0	93.1	64.4	124			
Surr: BFB	360		386.7		93.4	70	130			

Sample ID: **2108721-050amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SS9 (1')** Batch ID: **B80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846502** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	17	3.9	19.34	0	87.4	64.4	124	6.25	20	
Surr: BFB	360		386.7		92.6	70	130	0	0	

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **G80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848433** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.6	70	130			
Surr: BFB	530		500.0		106	70	130			

Sample ID: **2108721-003ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (4')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848435** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	54	4.8	23.90	9.606	184	64.4	124			S
Surr: BFB	670		478.0		140	70	130			S

Sample ID: **2108721-003amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (4')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848436** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-003amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (4')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848436** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	51	4.9	24.30	9.606	169	64.4	124	5.75	20	S
Surr: BFB	580		485.9		118	70	130	0	0	

Sample ID: **lcs-62009** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848444** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	70	130			
Surr: BFB	520		500.0		105	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **G80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848445** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	510		500.0		102	70	130			

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848446** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	520		500.0		105	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Marathon** Work Order Number: **2108721** RcptNo: 1

Received By: **Juan Rojas** **8/13/2021 3:37:00 PM**

Completed By: **Desiree Dominguez** **8/13/2021 3:41:06 PM**

Reviewed By: SGL 8/13/21

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH: (<2 or >12 unless noted)

Adjusted?

Checked by: JR/KPG/TMC 8/13/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.7	Good				
2	1.8	Good				
3	5.0	Good				
4	5.2	Good				

Released to Imaging: 8/16/2024 8:11:41 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamestown NM,87301

Phone #: 808-640-1823

Email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
NELAC ☐ Other

EDD (Type)

X Standard ☐ Rush

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: 5

Cooler Temp(including CF): See checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/11/2021	10:00	Soil	RCR-SB1 (0')	3		-001	x	x	x	x	x	x
8/11/2021	10:05	Soil	RCR-SB1 (2.5')	3		-002	x	x	x	x	x	x
8/11/2021	10:10	Soil	RCR-SB1 (4')	3		-003	x	x	x	x	x	x
8/11/2021	10:12	Soil	RCR-SB1 (5')	3		-004	x	x	x	x	x	x
8/11/2021	10:15	Soil	RCR-SB1 (7.5')	3		-005	x	x	x	x	x	x
8/11/2021	10:20	Soil	RCR-SB1 (8')	3		-006	x	x	x	x	x	x
8/11/2021	11:30	Soil	RCR-SB2 (0')	3		-007	x	x	x	x	x	x
8/11/2021	11:35	Soil	RCR-SB2 (2')	3		-008	x	x	x	x	x	x
8/11/2021	11:40	Soil	RCR-SB2 (2.5')	3		-009	x	x	x	x	x	x
8/11/2021	11:45	Soil	RCR-SB2 (5')	3		-010	x	x	x	x	x	x
8/11/2021	11:50	Soil	RCR-SB2 (7.5')	3		-011	x	x	x	x	x	x
8/11/2021	11:55	Soil	RCR-SB2 (8')	3		-012	x	x	x	x	x	x

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		Courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/7/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamesto NM,87301

Phone #: 808-640-1823

Email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other_____

EDD (Type) _____

X Standard ☐ Rush_____

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☐ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): see checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM									
8/11/2021	12:40	Soil	RCR-SB3 (0')	3		-013	x	x	x	x	x	x									
8/11/2021	12:45	Soil	RCR-SB3 (2.5')	3		-014	x	x	x	x	x	x									
8/11/2021	12:50	Soil	RCR-SB3 (5')	3		-015	x	x	x	x	x	x									
8/11/2021	12:55	Soil	RCR-SB3 (7.5')	3		-016	x	x	x	x	x	x									
8/11/2021	13:00	Soil	RCR-SB3 (8')	3		-017	x	x	x	x	x	x									
8/11/2021	14:00	Soil	RCR-SB4 (0')	3		-018	x	x	x	x	x	x									
8/11/2021	14:03	Soil	RCR-SB4 (2')	3		-019	x	x	x	x	x	x									
8/11/2021	14:05	Soil	RCR-SB4 (2.5')	3		-020	x	x	x	x	x	x									
8/12/2021	7:40	Soil	RCR-SB4 (5')	3		-021	x	x	x	x	x	x									
8/11/2021	14:15	Soil	RCR-SB4 (7.5')	3		-022	x	x	x	x	x	x									
8/11/2021	14:20	Soil	RCR-SB4 (8')	3		-023	x	x	x	x	x	x									
				3			x	x	x	x	x	x									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/1/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamestown NM,87301

Phone #: 808-640-1823

email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

EDD (Type)

X Standard ☐ **Rush**

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): See checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/11/2021	15:30	Soil	RCR-SB5 (0')	3		-024	x	x	x	x	x	x
8/11/2021	15:35	Soil	RCR-SB5 (2.5')	3		-025	x	x	x	x	x	x
8/11/2021	15:40	Soil	RCR-SB5 (4')	3		-026	x	x	x	x	x	x
8/11/2021	15:42	Soil	RCR-SB5 (5')	3		-027	x	x	x	x	x	x
8/11/2021	15:45	Soil	RCR-SB5 (7.5')	3		-028	x	x	x	x	x	x
8/11/2021	15:50	Soil	RCR-SB5 (8')	3		-029	x	x	x	x	x	x
8/11/2021	16:15	Soil	RCR-SB6 (0')	3		-030	x	x	x	x	x	x
8/11/2021	16:20	Soil	RCR-SB6 (2.5')	3		-031	x	x	x	x	x	x
8/11/2021	16:25	Soil	RCR-SB2 (3')	3		-032	x	x	x	x	x	x
			MeOH Blank 1			-063						
			MeOH Blank 2			-064						
			MeOH Blank 3			-065						

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		Courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/16/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Marathon Gallup Refinery	X Standard ☐ Rush
	Project Name: Railcar Release Investigation
Mailing Address: 92 Giant Crossing Road, Jamesto NM,87301	Project #: 697-089-001
Phone #: 808-640-1823	Project Manager: Emily Conkling/Brian McLoughlin
email or Fax#:	Sampler:
QA/QC Package: X Standard ☐ Level 4 (Full Validation)	On Ice: ☑ Yes ☐ No
Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other	# of Coolers: 5
☐ EDD (Type)	Cooler Temp(including CF): See Checklist

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/12/2021	8:00	Soil	RCR-SS1 (0.5')	3		-033	x	x	x	x	x	x
8/12/2021	8:05	Soil	RCR-SS1 (1')	3		-034	x	x	x	x	x	x
8/12/2021	8:10	Soil	RCR-SS2 (0.5')	3		-035	x	x	x	x	x	x
8/12/2021	8:15	Soil	RCR-SS2 (1')	3		-036	x	x	x	x	x	x
8/12/2021	8:20	Soil	RCR-SS3 (0.5')	3		-037	x	x	x	x	x	x
8/12/2021	8:25	Soil	RCR-SS3 (1')	3		-038	x	x	x	x	x	x
8/12/2021	8:30	Soil	RCR-SS4 (0.5')	3		-039	x	x	x	x	x	x
8/12/2021	8:35	Soil	RCR-SS4 (1')	3		-040	x	x	x	x	x	x
8/12/2021	8:40	Soil	RCR-SS5 (0.5')	3		-041	x	x	x	x	x	x
8/12/2021	8:45	Soil	RCR-SS5 (1')	3		-042	x	x	x	x	x	x
8/12/2021	8:50	Soil	RCR-SS6 (0.5')	3		-043	x	x	x	x	x	x
8/12/2021	8:55	Soil	RCR-SS6 (1')	3		-044	x	x	x	x	x	x

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/30/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamestown NM,87301

Phone #: 808-640-1823

Email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

EDD (Type)

X Standard ☐ Rush

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): See check 1.5+

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM									
8/12/2021	9:10	Soil	RCR-SS7 (0.5')	3		-045	x	x	x	x	x	x									
8/12/2021	9:15	Soil	RCR-SS7 (1')	3		-046	x	x	x	x	x	x									
8/12/2021	9:20	Soil	RCR-SS8 (0.5')	3		-047	x	x	x	x	x	x									
8/12/2021	9:25	Soil	RCR-SS8 (1')	3		-048	x	x	x	x	x	x									
8/12/2021	9:30	Soil	RCR-SS9 (0.5')	3		-049	x	x	x	x	x	x									
8/12/2021	9:35	Soil	RCR-SS9 (1')	3		-050	x	x	x	x	x	x									
8/11/2021		Soil	RCR-BD1	3		-051	x	x	x	x	x	x									
8/11/2021		Soil	RCR-BD2	3		-052	x	x	x	x	x	x									
8/11/2021		Soil	RCR-BD3	3		-053	x	x	x	x	x	x									
8/12/2021		Soil	RCR-BD4	3		-054	x	x	x	x	x	x									
8/12/2021		Soil	RCR-BD5	3		-055	x	x	x	x	x	x									
8/12/2021		Soil	RCR-BD6	3		-056	x	x	x	x	x	x									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin				
				courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/16/2024 3:11:43 PM

Chain of Custody Record

Client:	Marathon Gallup Refinery
Mailing Address:	92 Giant Crossing Road Jamesto NM,87301
Phone #:	808-640-1823
email or Fax#:	
QA/QC Package:	X Standard ☐ Level 4 (Full Validation)
Accreditation:	☐ Az Compliance ☐ NELAC ☐ Other_____
X EDD (Type)	_____

X Standard ☐ **Rush**_____

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): See checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/11/2021	12:00	Soil	RCR-EB1	2		-057			x			
8/11/2021	16:00	Soil	RCR-EB2	2		-058			x			
8/11/2021	16:30	Soil	RCR-EB3	2		-059			x			
8/12/2021	8:05	Soil	RCR-EB4	2		-060			x			
8/12/2021	8:35	Soil	RCR-EB5	2		-061			x			
8/12/2021	9:35	Soil	RCR-EB6	2		-062			x			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 2/29/2024 3:58:06 PM

~~Attachment~~ Appendix C – Data Validation Report

Tier II Data Validation Report Summary

Client: Marathon Oil	Laboratory: Hall Environmental
Project Name: Railcar Release Investigation	Sample Matrix: Soil
Project Number: 697-089-001 Task: 0002	Sample Start Date: 08/11/2021
Date Validated: 10/06/2021	Sample End Date: 08/19/2021
Parameters Included: ▪ Volatile Organic Compounds (VOC) by Environmental Protection Agency (EPA) Test Methods for Evaluating Solid Waste (SW-846) Method 8260B ▪ Semivolatile Organic Compounds (SVOC) by SW-846 Method 8270C ▪ Polynuclear Aromatic Hydrocarbons (PAH) by SW-846 Method 8270D with Selected Ion Monitoring (SIM) ▪ Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) by SW-846 Method 8015D MOD ▪ TPH Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) by SW-846 Method 8015M/D ▪ Total Metals by SW-846 Method 6020 ▪ Total Mercury by SW-846 Method 7471 ▪ Percent Solids by Standard Methods for the Examination of Water and Wastewater (SM) Method 2540G	
Laboratory Project ID: 2108721 and 2108A86	
Data Validator: Daran O'Hollearn, Lead Project Scientist	
Reviewer: Mike Phillips, Senior Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services Group on the analytical data report packages generated by Hall Environmental Analysis Laboratory of Albuquerque, New Mexico, with additional data from Anatek Labs, Inc. of Moscow, Idaho evaluating samples from the Marathon Oil site, located in Gallup, New Mexico.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values from:

- Field duplicate pairs
- Matrix spike (MS) and matrix spike duplicate (MSD) pairs
- Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) pairs

Laboratory accuracy was established by reviewing the demonstrated percent recoveries (%R) of the following items to verify that data are not biased.

- MS/MSD samples
- LCS/LCSD samples
- Organic system monitoring compounds (surrogates)

Field accuracy was established by collecting and analyzing the following samples to monitor for possible ambient or cross contamination during sampling and transportation.

- Trip blanks
- Equipment blanks

Tier II Data Validation Report Summary

Method compliance was established by reviewing sample integrity, holding times, detection limits, surrogate recoveries, laboratory blanks, initial and continuing calibrations (where applicable), and the LCS/LCSD percent recoveries against method-specific requirements.

Completeness was evaluated by determining the overall ratio of the number of samples and analyses planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody (CoC), laboratory analytical methods, and other laboratory and field documents associated with this analytical data set.

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
Data Set 2108721	
RCR-SB1 (0')	2108721-001a
RCR-SB1 (2.5')	2108721-002a
RCR-SB1 (4')	2108721-003a
RCR-SB1 (5')	2108721-004a
RCR-SB1 (7.5')	2108721-005a
RCR-SB1 (8')	2108721-006a
RCR-SB2 (0')	2108721-007a
RCR-SB2 (2')	2108721-008a
RCR-SB2 (2.5')	2108721-009a
RCR-SB2 (5')	2108721-010a
RCR-SB2 (7.5')	2108721-011a
RCR-SB2 (8')	2108721-012a
RCR-SB3 (0')	2108721-013a
RCR-SB3 (2.5')	2108721-014a
RCR-SB3 (5')	2108721-015a
RCR-SB3 (7.5')	2108721-016a
RCR-SB3 (8')	2108721-017a
RCR-SB4 (0')	2108721-018a
RCR-SB4 (2')	2108721-019a
RCR-SB4 (2.5')	2108721-020a
RCR-SB4 (5')	2108721-021a
RCR-SB4 (7.5')	2108721-022a
RCR-SB4 (8')	2108721-023a
RCR-SB5 (0')	2108721-024a
RCR-SB5 (2.5')	2108721-025a
RCR-SB5 (4')	2108721-026a
RCR-SB5 (5')	2108721-027a

Tier II Data Validation Report Summary

Client Sample ID	Laboratory Sample Number
RCR-SB5 (7.5')	2108721-028a
RCR-SB5 (8')	2108721-029a
RCR-SB6 (0')	2108721-030a
RCR-SB6 (2.5')	2108721-031a
RCR-SB6 (3')	2108721-032a
RCR-SS1 (0.5')	2108721-033a
RCR-SS1 (1')	2108721-034a
RCR-SS2 (0.5')	2108721-035a
RCR-SS2 (1')	2108721-036a
RCR-SS3 (0.5')	2108721-037a
RCR-SS3 (1')	2108721-038a
RCR-SS4 (0.5')	2108721-039a
RCR-SS4 (1')	2108721-040a
RCR-SS5 (0.5')	2108721-041a
RCR-SS5 (1')	2108721-042a
RCR-SS6 (0.5')	2108721-043a
RCR-SS6 (1')	2108721-044a
RCR-SS7 (0.5')	2108721-045a
RCR-SS7 (1')	2108721-046a
RCR-SS8 (0.5')	2108721-047a
RCR-SS8 (1')	2108721-048a
RCR-SS9 (0.5')	2108721-049a
RCR-SS9 (1')	2108721-050a
RCR-BD1	2108721-051a
RCR-BD2	2108721-052a
RCR-BD3	2108721-053a
RCR-BD4	2108721-054a
RCR-BD5	2108721-055a
RCR-BD6	2108721-056a
RCR-EB1	2108721-057a
RCR-EB2	2108721-058a
RCR-EB3	2108721-059a
RCR-EB4	2108721-060a
RCR-EB5	2108721-061a
RCR-EB6	2108721-062a

Tier II Data Validation Report Summary

Client Sample ID	Laboratory Sample Number
MeOH Blank 1	2108721-063
MeOH Blank 2	2108721-064
MeOH Blank 3	2108721-065
Data Set 2108A86	
RCR-SS10 (0.5')	2108A86-001
RCR-SS10 (1')	2108A86-002
RCR-SS11 (0.5')	2108A86-003
RCR-SS11 (1')	2108A86-004
RCR-BD7	2108A86-005
RCR-EB7	2108A86-006

Tier II Data Validation Report Summary

The laboratory data were reviewed to evaluate compliance with the methods and the quality of the reported data. Assessment of CoC completeness is included in Item 3 of the Data Validation Checklist. A check mark (✓) indicates that the referenced validation criteria were deemed acceptable, whereas a crossed circle (⊗) indicates validation criteria for which the data have been qualified by the data validator. An empty circle (○) indicates that the specified criterion does not apply to the reviewed data. Details are noted in the tables below.

Validation Criteria

- ✓ Data Completeness
- ✓ CoC Documentation (Item 3)
- ✓ Holding Times and Preservation (Items 6 and 7)
- ○ Initial and Continuing Calibrations (Items 9 and 10)
- ✓ Laboratory Blanks (Items 11 and 12)
- ⊗ MS/MSD (Items 13 and 14)
- ⊗ LCS/LCSD (Items 15 and 16)
- ⊗ System Monitoring Compounds (i.e., Surrogates) (Item 17)
- ⊗ Equipment and Trip Blanks (Items 18 and 19)
- ⊗ Field Duplicates (Items 20 and 21)
- ○ Laboratory Duplicates (Item 22)
- ✓ Data Relationships (Item 23)

Guidance References

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for the analyses listed below, or by the appropriate method if not covered in the National Functional Guidelines.

- Data for organic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA-540-R-20-005, November 2020 with additional reference to the USEPA CLP National Functional Guidelines for Organic Data Review, document number EPA 540/R-99/008, October 1999.
- Data for inorganic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, document number EPA-542-R-20-006, November 2020 with additional reference to the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540-R-04-004, October 2004.
- Review of field duplicates was conducted according to the USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.
- Trihydro Data Validation Variance Documentation, February 2021.

Tier II Data Validation Report Summary

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Item 2 of the Validation Criteria Checklist.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data that are not qualified meet the site data quality objectives. If values are assigned qualifiers other than an R (rejected, data not usable), the data may be used for site evaluation; however, consideration should be given to the reasons for qualification when interpreting sample concentrations. Data points that are assigned an R qualifier should not be used for site evaluation purposes.

If applicable, text was identified in **bold font** in the Validation Criteria Checklist to indicate that further action and/or qualification of the data were required. Data may have been qualified with J data flags by the laboratory if the result was greater than or equal to the method detection limit (MDL) but less than the reporting limit (RL). These laboratory-applied J flags were preserved, if present, and included in the Data Qualification Summary table at the end of this report. If applicable, data validation qualifiers were added for the items noted with crossed circles in the Validation Criteria section above. Please see the Data Qualification Summary table at the end of this report for a complete list of samples and analytes qualified.

If data would be qualified with more than one flag, one qualifier was assigned based on the severity; however, all reasons for qualification were retained. Data that would be qualified with both J+ and J- flags were evaluated based on validation criteria and assigned the appropriate flag. The hierarchy of qualifiers from the most to least severe is as follows:

- R > JB/U > NJ > J+/J- > J/UJ

Data qualifiers used during this validation are included in the following table.

Qualifier	Definition
J	Estimated concentration
J+	The result is an estimated concentration, but may be biased high
J-	The result is an estimated concentration, but may be biased low
UJ	Estimated reporting limit
U	Evaluated to be undetected at the reporting limit

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly unless otherwise noted in the Criteria Checklist below. The complete combined data package consisted of 10,065 data points. The data completeness calculation does not include any submitted blank sample results. Data points were not rejected. The data completeness measure for this data package is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECKLIST	
1. Was the report free of non-conformances identified by the laboratory?	Yes
Comments: The laboratory did not report non-conformances related to the analytical data for this sample set.	
2. Were the data free of data qualification flags and/or notes used by the laboratory? If no, define.	No
Comments: The laboratory used the following data qualification flags with this data set. D – Sample diluted due to matrix. J – Analyte detected below quantitation limits. R – %RPD outside laboratory limits S – % Recovery outside of range due to dilution or matrix.	
3. Were sample CoC forms and custody procedures complete?	Yes
Comments: The CoC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. Custody seals were not present or required since the samples were delivered to the laboratory by a laboratory courier, and custody was maintained at all times.	

VALIDATION CRITERIA CHECKLIST

4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable? Yes

Comments: The reporting limits for the data set were reviewed and appeared to be acceptable. The following dilutions were applied to the project samples.

Method	Sample(s)	Analyte(s)	Dilution Factor
6020	RCR-SB4 (2.5')	Multiple Metals	2
8015	Multiple Samples	GRO	2
8015	Multiple Samples	DRO and MRO	2
8260B	Multiple Samples	VOC	2
6020	RCR-SB3 (7.5'), RCR-SB3 (8')	Chromium and Lead	4
6020	Multiple Samples	Multiple Metals	5
7471	Multiple Samples	Mercury	5
8015	Multiple Samples	GRO	5
8015	RCR-SB4 (2.5'), RCR-SB6 (0'), RCR-SS5 (1')	DRO and MRO	5
8260B	Multiple Samples	VOC	5
6020	Multiple Samples	Select Metals	10
8015	RCR-SB6 (3')	GRO	10
8015	Multiple Samples	DRO and MRO	10
8260B	RCR-SB2 (2.5'), RCR-SB6 (3'), RCR-SS4 (1')	Select VOC	10
8270C	Multiple Samples	SVOC	10
6020	Multiple Samples	Select Metals	20
8015	Multiple Samples	DRO and MRO	20
8270C	Multiple Samples	SVOC	20
6020	RCR-SB2 (0'), RCR-SS3 (0.5')	Select Metals	50
8015	RCR-SS3 (1'), RCR-BD3, RCR-BD5	GRO	50
8015	RCR-SB5 (5'), RCR-BD1, RCR-BD3	DRO and MRO	50
8260B	Multiple Samples	Select VOC	50
Method	Sample(s)	Analyte(s)	Dilution Factor
8270C	Multiple Samples	SVOC	50
6020	RCR-SS10 (1'), RCR-BD7	Barium	80
6020	Multiple Samples	Barium	100
8015	RCR-SB2 (2')	DRO and MRO	100
8260B	RCR-SB6 (3')	1-Methylnaphthalene, 2-Methylnaphthalene	100
8270C	Multiple Samples	SVOC	100
6020	Multiple Samples	Select Metals	200
6020	Multiple Samples	Barium	500

VALIDATION CRITERIA CHECKLIST

5. Were the reported analytical methods and constituents in compliance with the QAPP, permit, or CoC? — No

Comments: The reported analytical methods were in compliance with the CoC, and the laboratory reported the requested constituents in accordance with the CoC, with the following exceptions.

The CoC requested mercury using Method 7470; however, the laboratory report states that the laboratory used Method 7471B for the mercury analyses. In addition, the electronic data deliverables (EDD) provided by the laboratory indicate that Method 7471 was used for the mercury analyses. The substituted analytical method met similar sensitivity, accuracy, and precision goals and was, therefore, an acceptable replacement.

6. Were samples received in good condition within method-specified requirements? — No

Comments: Samples were received on ice, in good condition, and with the cooler temperatures both within and outside the recommended temperature range of 4°C ± 2°C at 1.8°C, 5.0°C, 5.2°C, and 5.7°C as noted on the *Sample Log-in Check Lists*. Samples transferred to Anatek were received in good condition with the cooler temperatures both within and outside the recommended range at 0.9°C, 3.0°C, and 4.7°C and as noted on the *Sample Receipt and Preservation Forms*. The cooler temperatures below 2.0°C were judged as acceptable since the laboratory did not report the sample containers as broken or frozen.

7. Were samples extracted/digested and analyzed within method-specified or technical holding times? — Yes

Comments: The samples were digested/extracted and analyzed within method-specific holding times.

8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Specify if wet or dry units were used for soil. — Yes

Comments: The results were reported in concentration units of micrograms per liter (µg/L) and milligrams per kilogram (mg/kg), which were acceptable for the sample matrix and the analyses requested. The results for the soil samples were reported on a dry weight basis for Method 8270D. The remaining results for the soil samples were reported on a wet weight basis.

9. Did the laboratory provide any specific initial and/or continuing calibration results? — No

Comments: Initial and continuing calibration data were not included as part of this data set.

10. If initial and/or continuing calibration results were provided, were the results within acceptable limits? — N/A

Comments: Initial and continuing calibration data were not included as part of this data set.

11. Was the total number of laboratory blank samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method? — Yes

Comments: The total number of laboratory blank samples prepared was equal to at least 5% of the total number of samples.

12. Were target analytes reported as not detected in the laboratory blanks? — No

Comments: Target analytes were reported as not detected in the laboratory blanks, with the following exceptions.

Method	Analyte	Batch	Concentration
8270C	Di-n-butyl phthalate	61996	0.31 mg/kg
8015D	GRO	62159	1.5 mg/kg

Non-detections of the identified analytes in the associated samples did not require qualification.

VALIDATION CRITERIA CHECKLIST

13. Was the total number of MS samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method? Yes

Comments: The total number of matrix spike samples prepared was equal to at least 5% of the total number of samples, although MS samples were not prepared for all analyses and/or batches. The matrix spike sample source for each analytical batch in this sample set has been indicated below.

Method	Analytes	Batch	MS Sample Source
6020	Metals	62061	Not Prepared
6020	Metals	62062	Not Prepared
6020	Metals	62063	Not Prepared
6020	Metals	62196	RCR-SS10 (0.5')
7471	Mercury	62142	RCR-SB1 (2.5')
7471	Mercury	62143	RCR-SB5 (2.5')
7471	Mercury	62144	RCR-SS7 (0.5')
7471	Mercury	62297	Not Prepared
8015D MOD	GRO	62009	RCR-SB1 (4')
8015D MOD	GRO	B80534	RCR-SB1 (0')
8015D MOD	GRO	B80646	RCR-SB5 (7.5)
8015D MOD	GRO	B80682	RCR-SS9 (1')
8015D MOD	GRO	C80534	RCR-SB5 (0')
8015D MOD	GRO	G80598	Not Prepared
8015D MOD	GRO	G80737	Not Prepared
8015D MOD	GRO	R80646	Not Prepared
8015D MOD	GRO	R80682	Not Prepared
8015D MOD	GRO	62159	Not Prepared
8015D MOD	GRO	B80915	RCR-SS10 (1')
8015M/D	DRO	61999	RCR-SB1 (0')
8015M/D	DRO	62000	RCR-SB4 (5')
8015M/D	DRO	62016	Not Prepared
8015M/D	DRO	62104	Not Prepared
8260B	VOCs	62009	RCR-SB1 (5')
8260B	VOCs	A80534	RCR-SB1 (2.5')
8260B	VOCs	A80598	RCR-SB3 (7.5')
Method	Analytes	Batch	MS Sample Source
8260B	VOCs	A80646	RCR-SB5 (8')
8260B	VOCs	A80682	RCR-BD1
8260B	VOCs	B80573	Not Prepared
8260B	VOCs	R80598	Not Prepared
8260B	VOCs	R80607	Not Prepared
8260B	VOCs	R80646	Not Prepared
8260B	VOCs	R80682	Not Prepared
8260B	VOCs	R80737	Not Prepared
8260B	VOCs	62159	Not Prepared

VALIDATION CRITERIA CHECKLIST

8260B	VOCs	A80915	RCR-SS11 (0.5')
8260B	VOCs	R80700	Not Prepared
8270C	SVOCs	61996	Not Prepared
8270C	SVOCs	62017	RCR-SB4 (5')
8270C	SVOCs	62052	Not Prepared
8270C	SVOCs	62082	Not Prepared
8270C	SVOCs	62157	Not Prepared
8270D SIM	SVOCs	R81394	Not Prepared
8270D SIM	SVOCs	R81398	RCR-SB4 (5'), RCR-SS6 (0.5')
8270D SIM	SVOCs	R81306	RCR-SS10 (1')

Not Prepared – Matrix spikes were not prepared for this batch.

14. For MS/MSDs prepared from project samples, were percent recoveries and RPDs within data validation or laboratory quality control (QC) limits? No

Comments: The percent recoveries and RPDs for the MS/MSDs prepared from a project sample were within laboratory QC limits, with the following exceptions.

Method	Analyte	Batch	MS Recovery	MSD Recovery	MS/MSD QC Limits	MS/MSD RPD	RPD QC Limits
8270C	**2,4-Dinitrotoluene**	**62017**	**21.7%**	**21.2%**	**36.5-81.5%**	**Acceptable**	**20%**
7471B	**Mercury**	**62142**	**194%**	**316%**	**75-125%**	**47.6%**	**20%**
7471B	**Mercury**	**62143**	**128%**	**Acceptable**	**75-125%**	**Acceptable**	**20%**
7471B	**Mercury**	**62144**	**174%**	**155%**	**75-125%**	**Acceptable**	**20%**
8015D	**GRO**	**62009**	**184%**	**169%**	**64.4-124%**	**Acceptable**	**20%**

The analyte 2,4-dinitrotoluene was not detected in the associated samples. These results were qualified as UJ due to evidence of potential low bias.

Analytes with MS and/or MSD recoveries greater than the laboratory or data validation QC limits were detected in the associated samples, and the results were qualified as J+ to indicate estimated concentrations that may be biased high.

Mercury with a MS/MSD RPD value that was above the QC limit was detected in the associated samples. These results were qualified as J to indicate estimated concentrations due to evidence of poor precision.

15. Was the total number of LCSs analyzed equal to at least 5% of the total number of samples or analyzed as required by the method? Yes

Comments: The total number of LCS samples analyzed was equal to at least 5% of the total number of samples.

VALIDATION CRITERIA CHECKLIST

16. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within data validation or laboratory QC limits? No

Comments: The LCS and LCSD percent recoveries and LCS/LCSD RPD values were within laboratory QC limits, with the following exceptions.

Method	Analyte	Batch	LCS Recovery	LCS/LCSD QC Limits
6020	**Barium**	**62196**	**140%**	**70-130%**
6020	**Chromium**	**62196**	**140%**	**70-130%**
6020	**Chromium**	**62061**	**221%**	**70-130%**
7471B	**Mercury**	**62297**	**61.7%**	**70-130%**

The target analytes barium and chromium were detected in the associated samples, and these results were qualified as J+ based on the evidence of potential high bias.

Mercury was detected in the associated samples, and these results were qualified as J- due to evidence of potential low bias.

17. Were surrogate recoveries within laboratory QC limits? No

Comments: Surrogate recoveries in the analyses of the submitted samples were within laboratory QC limits, with the following exceptions.

Method	Surrogate	Sample	Surrogate Recovery	QC Limits
8260B	**4-Bromofluorobenzene**	**RCR-SB1 (4')**	**143%**	**70-130%**
8270C	Nitrobenzene-d_5	RCR-SB2 (7.5')	24.6%	24.7-73.2%
8270C	Nitrobenzene-d_5	RCR-SB4 (5')	22.7%	24.7-73.2%
8015M/D	**DNOP**	**RCR-SS5 (1')**	**131%**	**70-130%**

DRO and ORO were detected in sample RCR-SS5 (1'). DRO and ORO in sample RCR-SS5 (1') were qualified as J+ to indicate estimated concentrations that may be biased high.

Since Method 8260B surrogate associations were not available from the laboratory, qualification was assigned to all of the target analytes when one or more surrogates was outside the acceptance range. This condition existed for the sample RCR-SB1 (4'). The target analytes in sample RCR-SB1 (4') with a surrogate recovery that was greater than the upper laboratory QC limit were qualified as J+ if detected to indicate estimated concentrations that may be biased high. Qualification was not required for the non-detected analytes in the Method 8260B analysis of sample RCR-SB1 (4').

Since Method 8270C surrogate associations were not available from the laboratory, qualification was assigned to all of the target analytes in a given fraction (acid or base/neutral) when two or more surrogates from the same fraction (acid or base/neutral) were outside the acceptance range. This condition did not exist for the samples RCR-SB2 (7.5') and RCR-SB4 (5'). Qualification of sample data was not required.

The SVOC results for multiple samples were not qualified based on the surrogate non-conformances in the Method 8270C analyses since the applied dilutions of 10, 20, 50, and 100 times resulted in surrogate concentrations below routinely calibrated levels, and those results were deemed unreliable and possibly inaccurate.

The DRO and MRO results for multiple samples were not qualified based on the surrogate non-conformances in the Method 8015M/D analyses since the applied dilutions of 10, 20, 50, and 100 times resulted in surrogate concentrations below routinely calibrated levels, and those results were deemed unreliable and possibly inaccurate.

Qualification of sample data was not required based on surrogate non-conformances in QC samples as the environmental samples were evaluated based on their specific surrogate recoveries.

VALIDATION CRITERIA CHECKLIST

18. Were the number of trip blank, field blank, and/or equipment blank samples collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit? Yes

Comments: The number of trip, field, and equipment blanks collected was equal to at least 10% of the total number of samples. Three trip blank samples, MeOH Blank 1, MeOH Blank 2, and MeOH Blank 3, and seven equipment blank samples, RCR-EB1, RCR-EB2, RCR-EB3, RCR-EB4, RCR-EB5, RCR-EB6, and RCR-EB7, were collected as part of this sample set.

19. Were target analytes reported as not detected in the trip blank, field blank, and/or equipment blank samples? No

Comments: Target analytes were reported as not detected in the trip blank and equipment blank samples, with the following exceptions.

Blank Sample ID	Method	Analyte	Concentration
RCR-EB1	**8260B**	**2-Butanone**	**30 µg/L**
RCR-EB2	**8260B**	**2-Butanone**	**30 µg/L**
RCR-EB3	**8260B**	**2-Butanone**	**31 µg/L**
RCR-EB4	**8260B**	**2-Butanone**	**24 µg/L**
RCR-EB5	**8260B**	**2-Butanone**	**25 µg/L**
RCR-EB6	**8260B**	**2-Butanone**	**25 µg/L**
RCR-EB1	**8260B**	**2-Hexanone**	**2.4 µg/L**
RCR-EB2	**8260B**	**2-Hexanone**	**2.6 µg/L**
RCR-EB3	**8260B**	**2-Hexanone**	**2.8 µg/L**
RCR-EB4	**8260B**	**2-Hexanone**	**2.2 µg/L**
RCR-EB5	**8260B**	**2-Hexanone**	**2.2 µg/L**
RCR-EB6	**8260B**	**2-Hexanone**	**2.3 µg/L**
RCR-EB1	**8260B**	**Acetone**	**42 µg/L**
RCR-EB2	**8260B**	**Acetone**	**47 µg/L**
RCR-EB3	**8260B**	**Acetone**	**45 µg/L**
RCR-EB4	8260B	Acetone	37 µg/L
RCR-EB5	8260B	Acetone	38 µg/L
RCR-EB6	8260B	Acetone	39 µg/L

Detections of the identified analytes in the associated samples that were less than the blank results and/or less than the applicable reporting limits were assigned U qualifiers. Non-detections of the identified analytes in the associated samples did not require qualification.

VALIDATION CRITERIA CHECKLIST	
20. Was the number of field duplicates collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	Yes

Comments: The number of field duplicates collected was equal to at least 10% of the number of samples.

- Sample RCR-BD1 was collected as a field duplicate of sample RCR-SB2 (2').
- Sample RCR-BD2 was collected as a field duplicate of sample RCR-SB5 (5').
- Sample RCR-BD3 was collected as a field duplicate of sample RCR-SB6 (3').
- Sample RCR-BD4 was collected as a field duplicate of sample RCR-SB4 (5').
- Sample RCR-BD5 was collected as a field duplicate of sample RCR-SS3 (0.5').
- Sample RCR-BD6 was collected as a field duplicate of sample RCR-SS9 (1').
- Sample RCR-BD7 was collected as a field duplicate of sample RCR-SS10 (1').

21. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?	No

Comment: As indicated in the Field Duplicate Summary Tables at the end of this report, field duplicate RPD values were within data validation QC limits of 0-30% for water samples, with the following exceptions.

Duplicate pair RCR-SB2 (2') / RCR-BD1: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB2 (2') and RCR-BD1.**

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(a)pyrene and benzo(g,h,i)perylene for the field duplicate pair RCR-SB2 (2') and RCR-BD1 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(a)pyrene and benzo(g,h,i)perylene were qualified as J and UJ for the duplicate and parent samples, respectively.

Duplicate pair RCR-SB5 (5') / RCR-BD2: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB5 (5') and RCR-BD2.**

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples

An RPD value could not be calculated for total lead for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, total lead was qualified as J and UJ for the parent and duplicate samples, respectively.

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Duplicate pair RCR-SB6 (3') / RCR-BD3: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB-6 (3') and RCR-BD3.**

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

VALIDATION CRITERIA CHECKLIST	
An RPD value could not be calculated for benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene for the field duplicate pair RCR-SB-6 (3') and RCR-BD3 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene were qualified as J and UJ for the duplicate and parent samples, respectively. Duplicate pair RCR-SB4 (5') / RCR-BD4: **An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB4 (5') and RCR-BD4 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.** Duplicate pair RCR-SS3 (0.5') / RCR-BD5: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS3 (0.5') and RCR-BD5.** The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples. **An RPD value could not be calculated for benzo(g,h,i)perylene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, benzo(g,h,i)perylene was qualified as J and UJ for the duplicate and parent samples, respectively.** **An RPD value could not be calculated for fluorene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, fluorene was qualified as J and UJ for the parent and duplicate samples, respectively.** Duplicate pair RCR-SS9 (1') / RCR-BD6: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS9 (1') and RCR-BD6.** The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples. **An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SS9 (1') and RCR-BD6 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.** Duplicate pair RCR-SS10 (1') / RCR-BD7: **The RPD value for total mercury greatly exceeded the data validation limit of 50% at 151.1%. The total mercury results were qualified as J for the parent and duplicate samples, RCR-SS10 (1') and RCR-BD7, as well as the remaining associated samples based on evidence of extremely poor precision (RPD > 100%).**
22. For laboratory duplicates prepared from project samples, were RPDs within laboratory QC limits?	N/A
Comments: Laboratory duplicates were not prepared for the analyses in this data set.	

VALIDATION CRITERIA CHECKLIST	
23. Were the following data relationships realistic and acceptable?	
• Target analytes were reported by more than one method (e.g., 8260/8270, EPH/8270), and the results were in agreement?	Yes
Comments: Analytical results for 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, and hexachlorobutadiene were reported by both Method 8260B and 8270C. The results for these analytes were reported as not detected by both methods. Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were reported by Method 8260B, Method 8270C, and Method 8270D SIM for the submitted samples. The remaining PAHs were reported by Method 8270C and Method 8270D SIM. The results for these analytes were reported as not detected by one or more methods and/or the other results were less than five times the applicable reporting limits. Qualification of data was not required	
• Both total and dissolved metals analyses were performed, and the total metals results were greater than or equal to the dissolved metals results?	N/A
Comments: Only total metals were analyzed as part of this data set.	

FIELD DUPLICATE SUMMARY

Client Sample ID: RCR-SB2 (2') Field Duplicate Sample ID: RCR-BD1				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	ND (19 mg/kg)	1.8 mg/kg	DL
Barium, Total	6020	340 mg/kg	310 mg/kg	9.2%
Chromium, Total	6020	47 mg/kg	73 mg/kg	43.3%
Lead, Total	6020	57 mg/kg	84 mg/kg	38.3%
Selenium, Total	6020	ND (19) mg/kg	1.8 mg/kg	DL
Mercury, Total	**SW7471**	**0.062 mg/kg**	**0.12 mg/kg**	**63.7%**
TPH DRO	**SW8015**	**24,000 mg/kg**	**46,000 mg/kg**	**62.9%**
TPH GRO	SW8015	43 mg/kg	34 mg/kg	23.4%
TPH ORO	**SW8015**	**5,300 mg/kg**	**9,500 mg/kg**	**56.8%**
1,2,4-Trimethylbenzene	SW8260B	1.1 mg/kg	0.89 mg/kg	21.1%
1,3,5-Trimethylbenzene	SW8260B	0.063 mg/kg	0.053 mg/kg	17.2% +/-RL
1-Methylnaphthalene	SW8260B	5.9 mg/kg	5.6 mg/kg	5.2%
2-Methylnaphthalene	SW8260B	0.61 mg/kg	0.46 mg/kg	28.0% +/-RL
Benzene	SW8260B	0.41 mg/kg	0.32 mg/kg	24.7%
Ethylbenzene	SW8260B	1.0 mg/kg	0.84 mg/kg	17.4%
Isopropylbenzene	SW8260B	0.041 mg/kg	0.033 mg/kg	21.6% +/-RL
n-Butylbenzene	SW8260B	0.054 mg/kg	ND (0.52) mg/kg	DL
n-Propylbenzene	SW8260B	0.094 mg/kg	0.064 mg/kg	38.0% +/-RL
p-Isopropyltoluene	SW8260B	0.049 mg/kg	ND (0.17) mg/kg)	DL
Toluene	SW8260B	0.026 mg/kg	ND (0.17) mg/kg)	DL
Xylenes, Total	SW8260B	1.3 mg/kg	1.1 mg/kg	16.7%
1-Methylnaphthalene	**8270D**	**4.24 mg/kg**	**12.9 mg/kg**	**101.1%**
Acenaphthene	**8270D**	**1.73 mg/kg**	**5.29 mg/kg**	**101.4%**
Acenaphthylene	**8270D**	**0.342 mg/kg**	**1.08 mg/kg**	**103.8%**
Anthracene	**8270D**	**0.417 mg/kg**	**1.41 mg/kg**	**108.7%**
Benzo(a)anthracene	**8270D**	**0.689 mg/kg**	**1.56 mg/kg**	**77.5%**
Benzo(a)pyrene	**8270D**	**ND (0.263 mg/kg)**	**0.612 mg/kg**	**DL**
Benzo(b)fluoranthene	**8270D**	**0.357 mg/kg**	**0.811 mg/kg**	**77.7%**
Benzo(g,h,i)perylene	**8270D**	**ND (0.263 mg/kg)**	**0.444 mg/kg**	**DL**
Chrysene	**8270D**	**1.69 mg/kg**	**5.23 mg/kg**	**102.3%**
Dibenzo(a,h)anthracene	8270D	ND (0.263 mg/kg)	0.259 mg/kg	DL
Fluoranthene	**8270D**	**0.458 mg/kg**	**1.39 mg/kg**	**100.9%**
Fluorene	**8270D**	**2.07 mg/kg**	**6.78 mg/kg**	**106.4%**
Indeno(1,2,3-cd)pyrene	8270D	ND (0.263) mg/kg	0.189 mg/kg	DL
Naphthalene	**8270D**	**0.441 mg/kg**	**1.14 mg/kg**	**88.4%**
Phenanthrene	**8270D**	**3.41 mg/kg**	**8.75 mg/kg**	**87.8%**
Pyrene	**8270D**	**2.05 mg/kg**	**6.49 mg/kg**	**104.0%**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB2 (2') and RCR-BD1.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(a)pyrene and benzo(g,h,i)perylene for the field duplicate pair RCR-SB2 (2') and RCR-BD1 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(a)pyrene and benzo(g,h,i)perylene were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SB5 (5') Field Duplicate Sample ID: RCR-BD2				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.5 mg/kg	1.0 mg/kg	40.0% +/-RL
Barium, Total	**6020**	**780 mg/kg**	**270 mg/kg**	**97.1%**
Chromium, Total	**6020**	**13 mg/kg**	**6.0 mg/kg**	**73.7%**
Lead, Total	**6020**	**11 mg/kg**	**ND (20) mg/kg**	**DL**
Selenium, Total	**6020**	**1.4 mg/kg**	**3.5 mg/kg**	**85.7%**
Mercury, Total	SW7471	0.016 mg/kg	0.012 mg/kg	28.6% +/-RL
TPH DRO	**SW8015**	**1,200 mg/kg**	**710 mg/kg**	**51.3%**
TPH GRO	SW8015	54 mg/kg	55 mg/kg	1.8%
TPH ORO	SW8015	3,600 mg/kg	2,200 mg/kg	48.3%
1,2,4-Trimethylbenzene	SW8260B	1.3 mg/kg	1.2 mg/kg	8.0%
1,3,5-Trimethylbenzene	SW8260B	0.33 mg/kg	0.32 mg/kg	3.1%
2-Methylnaphthalene	SW8260B	0.046 mg/kg	0.055 mg/kg	17.8% +/-RL
Benzene	**SW8260B**	**0.81 mg/kg**	**0.34 mg/kg**	**81.7%**
Ethylbenzene	SW8260B	0.88 mg/kg	0.64 mg/kg	31.6%
Isopropylbenzene	SW8260B	0.049 mg/kg	0.035 mg/kg	33.3% +/-RL
MTBE	**SW8260B**	**0.35 mg/kg**	**0.071 mg/kg**	**132.5%**
Naphthalene	SW8260B	0.080 mg/kg	0.076 mg/kg	5.1% +/-RL
n-Butylbenzene	SW8260B	0.034 mg/kg	0.037 mg/kg	8.5% +/-RL
n-Propylbenzene	SW8260B	0.25 mg/kg	0.19 mg/kg	27.3%
Toluene	SW8260B	0.066 mg/kg	0.066 mg/kg	0.0%
Xylenes, Total	SW8260B	2.4 mg/kg	2.2 mg/kg	8.7%
1-Methylnaphthalene	**8270D**	**0.0222 mg/kg**	**0.149 mg/kg**	**148.1%**
2-Methylnaphthalene	**8270D**	**0.0406 mg/kg**	**0.106 mg/kg**	**89.2%**
Acenaphthene	**8270D**	**ND (0.0118) mg/kg**	**0.0652 mg/kg**	**DL**
Anthracene	8270D	ND (0.0118) mg/kg	0.0348 mg/kg	DL
Benzo(a)anthracene	**8270D**	**0.0959 mg/kg**	**0.543 mg/kg**	**140.0%**
Benzo(a)pyrene	**8270D**	**0.0908 mg/kg**	**1.95 mg/kg**	**182.2%**
Benzo(b)fluoranthene	**8270D**	**0.109 mg/kg**	**0.704 mg/kg**	**146.4%**
Benzo(g,h,i)perylene	**8270D**	**0.0766 mg/kg**	**0.519 mg/kg**	**148.6%**
Benzo(k)fluoranthene	**8270D**	**0.016 mg/kg**	**0.148 mg/kg**	**161.0%**
Chrysene	**8270D**	**0.302 mg/kg**	**2.67 mg/kg**	**159.4%**
Dibenzo(a,h)anthracene	**8270D**	**0.0432 mg/kg**	**0.271 mg/kg**	**145.0%**
Fluoranthene	**8270D**	**0.0128 mg/kg**	**0.111 mg/kg**	**158.6%**
Fluorene	**8270D**	**ND (0.0118) mg/kg**	**0.0732 mg/kg**	**DL**
Indeno(1,2,3-cd)pyrene	**8270D**	**0.0302 mg/kg**	**0.225 mg/kg**	**152.7%**
Naphthalene	**8270D**	**0.0337 mg/kg**	**0.137 mg/kg**	**121.0%**
Phenanthrene	**8270D**	**ND (0.0118) mg/kg**	**0.148 mg/kg**	**DL**
Pyrene	**8270D**	**0.362 mg/kg**	**2.73 mg/kg**	**153.2%**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB5 (5') and RCR-BD2.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples

An RPD value could not be calculated for total lead for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, total lead was qualified as J and UJ for the parent and duplicate samples, respectively. .

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SB6 (3') Field Duplicate Sample ID: RCR-BD3				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.1 mg/kg	1.1 mg/kg	0.0% +/-RL
Barium, Total	6020	360 mg/kg	390 mg/kg	8.0%
Chromium, Total	6020	14 mg/kg	16 mg/kg	13.3%
Lead, Total	6020	13 mg/kg	14 mg/kg	7.4%
Selenium, Total	6020	1.5 mg/kg	2.0 mg/kg	28.6% +/-RL
Mercury, Total	SW7471	0.0089 mg/kg	0.010 mg/kg	11.6% +/-RL
TPH DRO	SW8015	16,000 mg/kg	18,000 mg/kg	11.8%
TPH GRO	SW8015	1,000 mg/kg	670 mg/kg	39.5%
1,2,4-Trimethylbenzene	SW8260B	28 mg/kg	33 mg/kg	16.4%
1,3,5-Trimethylbenzene	SW8260B	4.1 mg/kg	3.5 mg/kg	15.8%
1-Methylnaphthalene	SW8260B	38 mg/kg	42 mg/kg	10.0%
2-Methylnaphthalene	SW8260B	65 mg/kg	71 mg/kg	8.8%
Benzene	SW8260B	4.4 mg/kg	4.7 mg/kg	6.6%
Ethylbenzene	SW8260B	34 mg/kg	32 mg/kg	6.1%
Isopropylbenzene	SW8260B	4.7 mg/kg	4 mg/kg	16.1%
MTBE	SW8260B	11 mg/kg	12 mg/kg	8.7%
Naphthalene	SW8260B	32 mg/kg	39 mg/kg	19.7%
n-Butylbenzene	SW8260B	8.9 mg/kg	5.9 mg/kg	40.5%
n-Propylbenzene	SW8260B	16 mg/kg	15 mg/kg	6.5%
p-Isopropyltoluene	SW8260B	2.7 mg/kg	2.2 mg/kg	20.4%
sec-Butylbenzene	SW8260B	4.8 mg/kg	3.6 mg/kg	28.6%
tert-Butylbenzene	SW8260B	0.14 mg/kg	ND (0.065) mg/kg	DL
Toluene	SW8260B	0.24 mg/kg	0.26 mg/kg	8.0%
Xylenes, Total	SW8260B	18 mg/kg	19 mg/kg	5.4%
1-Methylnaphthalene	SW8270C	70 mg/kg	ND (200) mg/kg	DL
2-Methylnaphthalene	SW8270C	110 mg/kg	140 mg/kg	24.0% +/-RL
Naphthalene	SW8270C	57 mg/kg	ND (200) mg/kg	DL
1-Methylnaphthalene	**8270D**	**43.1 mg/kg**	**84.2 mg/kg**	**64.6%**
2-Methylnaphthalene	**8270D**	**68.0 mg/kg**	**146 mg/kg**	**72.9%**
Acenaphthene	**8270D**	**0.945 mg/kg**	**4.28 mg/kg**	**127.7%**
Acenaphthylene	**8270D**	**0.538 mg/kg**	**2.34 mg/kg**	**125.2%**
Anthracene	**8270D**	**0.340 mg/kg**	**19.9 mg/kg**	**193.3%**
Benzo(a)anthracene	**8270D**	**0.960 mg/kg**	**2.88 mg/kg**	**100.0%**
Benzo(a)pyrene	**8270D**	**0.549 mg/kg**	**2.64 mg/kg**	**131.1%**
Benzo(b)fluoranthene	**8270D**	**0.314 mg/kg**	**1.21 mg/kg**	**117.6%**
Benzo(g,h,i)perylene	**8270D**	**ND (0.247) mg/kg**	**1.02 mg/kg**	**DL**
Benzo(k)fluoranthene	**8270D**	**ND (0.247) mg/kg**	**1.12 mg/kg**	**DL**
Chrysene	8270D	2.12 mg/kg	3.12 mg/kg	38.2%
Dibenzo(a,h)anthracene	**8270D**	**ND (0.247) mg/kg**	**0.518 mg/kg**	**DL**
Fluoranthene	**8270D**	**0.464 mg/kg**	**1.29 mg/kg**	**94.2%**

Client Sample ID: RCR-SB6 (3') Field Duplicate Sample ID: RCR-BD3				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Fluorene	**8270D**	**3.54 mg/kg**	**0.411 mg/kg**	**158.4%**
Indeno(1,2,3-cd)pyrene	**8270D**	**ND (0.247 mg/kg)**	**0.340 mg/kg**	**DL**
Naphthalene	**8270D**	**26.6 mg/kg**	**50.6 mg/kg**	**62.2%**
Phenanthrene	**8270D**	**8.20 mg/kg**	**16.7 mg/kg**	**68.3%**
Pyrene	**8270D**	**2.47 mg/kg**	**4.98 mg/kg**	**67.4%**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB6 (3') and RCR-BD3.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene for the field duplicate pair RCR-SB6 (3') and RCR-BD3 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SB4 (5') Field Duplicate Sample ID: RCR-BD4				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	0.85 mg/kg	0.93 mg/kg	9.0% +/-RL
Barium, Total	6020	350 mg/kg	320 mg/kg	9.0%
Chromium, Total	6020	19 mg/kg	21 mg/kg	10.0%
Lead, Total	6020	12 mg/kg	13 mg/kg	8.0%
Selenium, Total	6020	1.4 mg/kg	2.2 mg/kg	44.4% +/-RL
Mercury, Total	SW7471	0.0063 mg/kg	0.0086 mg/kg	30.9% +/-RL
TPH GRO	SW8015	9.0 mg/kg	6.6 mg/kg	30.8%
Benzene	SW8260B	0.63 mg/kg	0.57 mg/kg	10.0%
Ethylbenzene	SW8260B	0.20 mg/kg	0.15 mg/kg	28.6%
Isopropylbenzene	SW8260B	0.016 mg/kg	0.012 mg/kg	28.6% +/-RL
MTBE	SW8260B	1.5 mg/kg	1.4 mg/kg	6.9%
Naphthalene	SW8260B	0.017 mg/kg	0.015 mg/kg	12.5% +/-RL
n-Propylbenzene	SW8260B	0.046 mg/kg	0.034 mg/kg	30.0% +/-RL
Di-n-butylphthalate	SW8270C	ND (0.39) mg/kg	0.32 mg/kg	DL
1-Methylnaphthalene	**8270D**	**ND (0.0126) mg/kg**	**0.332 mg/kg**	**DL**
2-Methylnaphthalene	**8270D**	**ND (0.0126) mg/kg**	**0.534 mg/kg**	**DL**
Acenaphthene	8270D	ND (0.0126) mg/kg	0.0195 mg/kg	DL
Fluorene	**8270D**	**ND (0.0126) mg/kg**	**0.0353 mg/kg**	**DL**
Naphthalene	**8270D**	**ND (0.0126) mg/kg**	**0.200 mg/kg**	**DL**
Phenanthrene	**8270D**	**ND (0.0126) mg/kg**	**0.106 mg/kg**	**DL**
Pyrene	**8270D**	**ND (0.0126) mg/kg**	**0.0266 mg/kg**	**DL**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB4 (5') and RCR-BD4 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SS3 (0.5') Field Duplicate Sample ID: RCR-BD5				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.1 mg/kg	1.1 mg/kg	0.0% +/-RL
Barium, Total	6020	360 mg/kg	330 mg/kg	8.7%
Chromium, Total	6020	15 mg/kg	23 mg/kg	42.1%
Lead, Total	6020	66 mg/kg	65 mg/kg	1.5%
Selenium, Total	6020	ND (2.1) mg/kg	1.8 mg/kg	DL
Mercury, Total	**SW7471**	**0.20 mg/kg**	**0.030 mg/kg**	**147.8%**
TPH DRO	SW8015	7,600 mg/kg	7,600 mg/kg	0.0%
TPH GRO	SW8015	700 mg/kg	420 mg/kg	50.0%
1,2,4-Trimethylbenzene	SW8260B	49 mg/kg	41 mg/kg	17.8%
1,3,5-Trimethylbenzene	SW8260B	18 mg/kg	14 mg/kg	25.0%
1-Methylnaphthalene	SW8260B	7.4 mg/kg	5.9 mg/kg	22.6%
2-Methylnaphthalene	SW8260B	13 mg/kg	11 mg/kg	16.7%
Benzene	SW8260B	4.0 mg/kg	4.0 mg/kg	0.0%
Ethylbenzene	SW8260B	16 mg/kg	13 mg/kg	20.7%
Isopropylbenzene	SW8260B	1.5 mg/kg	1.4 mg/kg	6.9%
MTBE	SW8260B	ND (0.16) mg/kg	0.052 mg/kg	DL
Naphthalene	SW8260B	10 mg/kg	10 mg/kg	0.0%
n-Butylbenzene	SW8260B	1.9 mg/kg	1.5 mg/kg	23.5%
n-Propylbenzene	SW8260B	5.8 mg/kg	4.9 mg/kg	16.8%
p-Isopropyltoluene	SW8260B	0.49 mg/kg	0.37 mg/kg	27.9%
sec-Butylbenzene	SW8260B	0.64 mg/kg	0.55 mg/kg	15.1%
Toluene	SW8260B	18 mg/kg	17 mg/kg	5.7%
Xylenes, Total	SW8260B	70 mg/kg	59 mg/kg	17.1%
1-Methylnaphthalene	SW8270C	21 mg/kg	ND (200) mg/kg	DL
2-Methylnaphthalene	SW8270C	35 mg/kg	ND (200) mg/kg	DL
Naphthalene	SW8270C	24 mg/kg	ND (200) mg/kg	DL
1-Methylnaphthalene	**8270D**	**11.2 mg/kg**	**0.143 mg/kg**	**195.0%**
2-Methylnaphthalene	**8270D**	**16.5 mg/kg**	**0.221 mg/kg**	**194.7%**
Acenaphthene	8270D	0.548 mg/kg	ND (0.026) mg/kg	DL
Benzo(g,h,i)perylene	**8270D**	**ND (0.498) mg/kg**	**0.0787 mg/kg**	**DL**
Chrysene	**8270D**	**0.731 mg/kg**	**0.102 mg/kg**	**151.0%**
Fluorene	**8270D**	**2.00 mg/kg**	**ND (0.026) mg/kg**	**DL**
Naphthalene	**8270D**	**5.50 mg/kg**	**0.0767 mg/kg**	**194.5%**
Phenanthrene	**8270D**	**3.71 mg/kg**	**0.0605 mg/kg**	**193.6%**
Pyrene	**8270D**	**1.61 mg/kg**	**0.053 mg/kg**	**187.3%**

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DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS3 (0.5') and RCR-BD5.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(g,h,i)perylene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, benzo(g,h,i)perylene was qualified as J and UJ for the duplicate and parent samples, respectively.

An RPD value could not be calculated for fluorene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, fluorene was qualified as J and UJ for the parent and duplicate samples, respectively.

Client Sample ID: RCR-SS9 (1') Field Duplicate Sample ID: RCR-BD6				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.9 mg/kg	1.0 mg/kg	62.1% +/-RL
Barium, Total	6020	390 mg/kg	320 mg/kg	19.7%
Chromium, Total	6020	36 mg/kg	22 mg/kg	48.3%
Lead, Total	6020	20 mg/kg	16 mg/kg	22.2%
Selenium, Total	6020	1.6 mg/kg	2.1 mg/kg	27.0%
Mercury, Total	**SW7471**	**0.21 mg/kg**	**0.043 mg/kg**	**132.0%**
TPH DRO	SW8015	9.4 mg/kg	16 mg/kg	52.0% +/-RL
TPH GRO	SW8015	ND (3.9) mg/kg)	1.2 mg/kg	DL
TPH ORO	SW8015	65 mg/kg	ND (47) mg/kg	DL
1,1,2,2-Tetrachloroethane	SW8260B	ND (0.039) mg/kg)	0.017 mg/kg	DL
1,2,4-Trimethylbenzene	SW8260B	0.023 mg/kg	0.019 mg/kg	19.0% +/-RL
2-Butanone	SW8260B	ND (0.39) mg/kg)	0.13 mg/kg	DL
2-Hexanone	SW8260B	ND (0.39) mg/kg)	0.031 mg/kg	DL
Bromodichloromethane	SW8260B	ND (0.039) mg/kg)	0.0053 mg/kg	DL
Toluene	SW8260B	0.0085 mg/kg	0.0043 mg/kg	65.6% +/-RL
1-Methylnaphthalene	**8270D**	**ND (0.0231) mg/kg)**	**13.3 mg/kg**	**DL**
2-Methylnaphthalene	**8270D**	**ND (0.0231) mg/kg)**	**21 mg/kg**	**DL**
Acenaphthene	**8270D**	**ND (0.0231) mg/kg)**	**1.51 mg/kg**	**DL**
Acenaphthylene	**8270D**	**ND (0.0231) mg/kg)**	**0.779 mg/kg**	**DL**
Anthracene	**8270D**	**ND (0.0231) mg/kg)**	**4.08 mg/kg**	**DL**
Benzo(a)anthracene	**8270D**	**ND (0.0231) mg/kg)**	**0.163 mg/kg**	**DL**
Benzo(a)pyrene	**8270D**	**ND (0.0231) mg/kg)**	**0.298 mg/kg**	**DL**
Benzo(b)fluoranthene	**8270D**	**ND (0.0231) mg/kg)**	**0.164 mg/kg**	**DL**
Benzo(g,h,i)perylene	**8270D**	**0.0523 mg/kg**	**0.126 mg/kg**	**82.7%**
Benzo(k)fluoranthene	**8270D**	**ND (0.0231) mg/kg)**	**0.152 mg/kg**	**DL**
Chrysene	**8270D**	**ND (0.0231) mg/kg)**	**1.07 mg/kg**	**DL**
Dibenzo(a,h)anthracene	8270D	ND (0.0231) mg/kg)	0.0457 mg/kg	DL
Fluoranthene	**8270D**	**ND (0.0231) mg/kg)**	**0.654 mg/kg**	**DL**
Fluorene	**8270D**	**ND (0.0231) mg/kg)**	**2.96 mg/kg**	**DL**
Indeno(1,2,3-cd)pyrene	8270D	ND (0.0231) mg/kg)	0.0326 mg/kg	DL
Naphthalene	**8270D**	**ND (0.0231) mg/kg)**	**14.1 mg/kg**	**DL**
Phenanthrene	**8270D**	**ND (0.0231) mg/kg)**	**3.57 mg/kg**	**DL**
Pyrene	**8270D**	**ND (0.0231) mg/kg)**	**1.97 mg/kg**	**DL**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS9 (1') and RCR-BD6.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SS9 (1') and RCR-BD6 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SS10 (1') Field Duplicate Sample ID: RCR-BD7				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	0.89 mg/kg	0.96 mg/kg	7.6% +/-RL
Barium, Total	6020	280 mg/kg	270 mg/kg	3.6%
Chromium, Total	6020	19 mg/kg	17 mg/kg	11.1%
Lead, Total	6020	10 mg/kg	10 mg/kg	0.0%
Selenium, Total	6020	1.9 mg/kg	1.8 mg/kg	5.4%
Mercury, Total	**SW7471**	**0.011 mg/kg**	**0.079 mg/kg**	**151.1%**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD value for total mercury greatly exceeded the data validation limit of 50% at 151.1%. The total mercury results were qualified as J for the parent and duplicate samples, RCR-SS10 (1') and RCR-BD7, as well as the remaining associated samples based on evidence of extremely poor precision (RPD > 100%).

DATA QUALIFICATION SUMMARY

Abbreviation	Reason
EBD	Equipment blank detection
ERPD-FD	High field duplicate RPD.
ERPD-MS	The MS/MSD RPD exceeded the upper acceptable limit indicating poor precision.
HR-LCS	The LCS and/or LCSD percent recovery was greater than the upper acceptable limit indicating a possible high bias.
HR-MS	The MS and/or MSD percent recovery was greater than the upper acceptable limit indicating possible matrix interference.
HR-SUR	The surrogate percent recovery was greater than the upper acceptable limit indicating a possible high bias.
LR-LCS	The LCS and/or LCSD percent recovery was less than the lower acceptable limit indicating a possible low bias.
LR-MS	The MS and/or MSD percent recovery was less than the lower acceptable limit indicating possible matrix interference.
MDLRL	Flagged by the laboratory: The result was greater than the MDL but less than the RL.

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
1,1,2,2-Tetrachloroethane	SW8260B	RCR-SS8 (1')	2108721-048a	0.019	0.049	mg/kg	J	MDLRL
1,1,2,2-Tetrachloroethane	SW8260B	RCR-BD6	2108721-056a	0.017	0.031	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.072	0.049	mg/kg	J+	HR-SUR
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (0')	2108721-001a	0.014	0.044	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (2.5')	2108721-002a	0.023	0.039	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (8')	2108721-006a	0.043	0.045	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB2 (5')	2108721-010a	0.0058	0.029	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.011	0.031	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.026	0.048	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.031	0.040	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB4 (7.5')	2108721-022a	0.020	0.037	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB4 (8')	2108721-023a	0.040	0.040	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB5 (2.5')	2108721-025a	0.085	0.15	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
1,2,4-Trimethylbenzene	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.013	0.027	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS1 (1')	2108721-034a	0.0097	0.035	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS6 (0.5')	2108721-043a	0.011	0.034	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS7 (0.5')	2108721-045a	0.013	0.037	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS8 (0.5')	2108721-047a	0.013	0.037	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS8 (1')	2108721-048a	0.0071	0.049	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS9 (0.5')	2108721-049a	0.027	0.035	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS9 (1')	2108721-050a	0.023	0.039	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-BD6	2108721-056a	0.019	0.031	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.063	0.18	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SB5 (4')	2108721-026a	0.056	0.23	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.023	0.049	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SS9 (0.5')	2108721-049a	0.0085	0.035	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-BD1	2108721-051a	0.053	0.17	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB1 (4')	2108721-003a	1.9	0.20	mg/kg	J+	HR-SUR
1-Methylnaphthalene	8270D	RCR-SB2 (2')	2108721-008A	4.24	0.263	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SB5 (5')	2108721-027A	0.0222	0.0118	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SB6 (3')	2108721-032A	43.1	0.247	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SS3 (0.5')	2108721-037A	11.2	0.498	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD1	2108721-051A	12.9	0.131	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD2	2108721-052A	0.149	0.0212	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD3	2108721-053A	84.2	0.248	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD4	2108721-054A	0.332	0.0127	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD5	2108721-055A	0.143	0.026	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD6	2108721-056A	13.3	0.475	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
1-Methylnaphthalene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
1-Methylnaphthalene	SW8260B	RCR-SB1 (8')	2108721-006a	0.082	0.18	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (0')	2108721-013a	0.080	0.13	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.066	0.12	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (5')	2108721-015a	0.15	0.19	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.091	0.16	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SB4 (0')	2108721-018A	32	49	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.16	0.16	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB6 (0')	2108721-030a	0.13	0.19	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SB6 (3')	2108721-032A	70	100	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SS3 (0.5')	2108721-037A	21	39	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SS3 (1')	2108721-038A	23	39	mg/kg	J	MDLRL
2,4-Dinitrotoluene	SW8270C	RCR-SB2 (2')	2108721-008A	ND	490	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB4 (5')	2108721-021A	ND	0.48	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB4 (7.5')	2108721-022a	ND	0.50	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB4 (8')	2108721-023A	ND	0.47	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (0')	2108721-024A	ND	4.9	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (2.5')	2108721-025A	ND	4.7	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (4')	2108721-026A	ND	4.9	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (5')	2108721-027A	ND	25	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (7.5')	2108721-028A	ND	4.9	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (8')	2108721-029A	ND	0.5	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB6 (2.5')	2108721-031A	ND	99	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB6 (3')	2108721-032A	ND	250	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS1 (0.5')	2108721-033A	ND	4.6	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS1 (1')	2108721-034A	ND	4.8	mg/kg	UJ	LR-MS

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
2,4-Dinitrotoluene	SW8270C	RCR-SS2 (0.5')	2108721-035A	ND	5.0	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS2 (1')	2108721-036A	ND	5.0	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS3 (0.5')	2108721-037A	ND	96	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS3 (1')	2108721-038A	ND	96	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS4 (0.5')	2108721-039a	ND	25	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS4 (1')	2108721-040a	ND	9.7	mg/kg	UJ	LR-MS
2-Butanone	SW8260B	RCR-SB3 (5')	2108721-015a	0.45	0.48	mg/kg	U	EBD, MDLRL
2-Butanone	SW8260B	RCR-BD6	2108721-056a	0.13	0.31	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SB1 (4')	2108721-003a	0.36	0.49	mg/kg	U	EBD, HR-SUR, MDLRL
2-Hexanone	SW8260B	RCR-SB1 (5')	2108721-004a	0.19	0.47	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SB3 (5')	2108721-015a	0.045	0.48	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SB6 (0')	2108721-030a	0.038	0.49	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SS8 (1')	2108721-048a	0.036	0.49	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-BD6	2108721-056a	0.031	0.31	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-EB1	2108721-057a	2.4	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB2	2108721-058a	2.6	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB3	2108721-059a	2.8	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB4	2108721-060a	2.2	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB5	2108721-061a	2.2	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB6	2108721-062a	2.3	10	µg/L	J	MDLRL
2-Methylnaphthalene	8270D	RCR-SB5 (5')	2108721-027A	0.0406	0.0118	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SB6 (3')	2108721-032A	68.0	0.247	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SS3 (0.5')	2108721-037A	16.5	0.498	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD2	2108721-052A	0.106	0.0212	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD3	2108721-053A	146	0.248	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD4	2108721-054A	0.534	0.0127	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
2-Methylnaphthalene	8270D	RCR-BD5	2108721-055A	0.221	0.026	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD6	2108721-056A	21.0	0.475	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
2-Methylnaphthalene	SW8260B	RCR-SB1 (5')	2108721-004a	0.054	0.19	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB2 (0')	2108721-007a	0.054	0.19	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB2 (2')	2108721-008a	0.61	0.71	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (0')	2108721-013a	0.074	0.13	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.074	0.12	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (5')	2108721-015a	0.13	0.19	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.037	0.16	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SB4 (0')	2108721-018A	41	49	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SB4 (2')	2108721-019A	26	48	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB5 (5')	2108721-027a	0.046	0.13	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.032	0.11	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SS2 (1')	2108721-036A	1.1	2.0	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SS3 (0.5')	2108721-037A	35	39	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SS7 (1')	2108721-046a	0.044	0.12	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-BD1	2108721-051a	0.46	0.69	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-BD2	2108721-052a	0.055	0.12	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-BD3	2108721-053a	140	200	mg/kg	J	MDLRL
4-Methyl-2-Pentanone	SW8260B	RCR-SB1 (5')	2108721-004a	0.24	0.47	mg/kg	J	MDLRL
4-Methyl-2-Pentanone	SW8260B	RCR-SB3 (5')	2108721-015a	0.066	0.48	mg/kg	J	MDLRL
Acenaphthene	8270D	RCR-SB2 (2')	2108721-008A	1.73	0.263	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-SB6 (3')	2108721-032A	0.945	0.247	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-BD1	2108721-051A	5.29	0.131	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Acenaphthene	8270D	RCR-BD2	2108721-052A	0.0652	0.0212	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-BD3	2108721-053A	4.28	0.0248	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-BD6	2108721-056A	1.51	0.0238	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-SB5 (5')	2108721-027A	ND	0.0118	mg/kg	UJ	ERPD-FD
Acenaphthylene	8270D	RCR-SB2 (2')	2108721-008A	0.342	0.263	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-SB6 (3')	2108721-032A	0.538	0.247	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-BD1	2108721-051A	1.08	0.131	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-BD3	2108721-053A	2.34	0.0248	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-BD6	2108721-056A	0.779	0.0238	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Acetone	SW8260B	RCR-SB3 (5')	2108721-015a	0.17	0.73	mg/kg	U	EBD, MDLRL
Anthracene	8270D	RCR-SB2 (2')	2108721-008A	0.417	0.263	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-SB6 (3')	2108721-032A	0.340	0.247	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-BD1	2108721-051A	1.41	0.131	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-BD3	2108721-053A	19.9	0.0248	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-BD6	2108721-056A	4.08	0.0238	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Arsenic, Total	6020	RCR-SB1 (0')	2108721-001A	1.4	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (0')	2108721-018A	2.0	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (2')	2108721-019A	1.5	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (5')	2108721-021A	0.85	1.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (7.5')	2108721-022A	0.97	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB5 (2.5')	2108721-025A	1.6	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB5 (5')	2108721-027A	1.5	2.1	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB6 (0')	2108721-030A	1.5	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB6 (2.5')	2108721-031A	1.1	1.9	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Arsenic, Total	6020	RCR-SB6 (3')	2108721-032A	1.1	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS3 (0.5')	2108721-037A	1.1	2.1	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS3 (1')	2108721-038A	1.2	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS5 (0.5')	2108721-041A	1.4	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS5 (1')	2108721-042A	1.3	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS6 (1')	2108721-044A	1.2	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS7 (0.5')	2108721-045A	1.4	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS7 (1')	2108721-046A	1.3	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS8 (0.5')	2108721-047A	1.2	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-BD2	2108721-052A	1.0	1.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-BD4	2108721-054A	0.93	1.0	mg/kg	J	MDLRL
Barium, Total	6020	RCR-SB5 (5')	2108721-027A	780	21	mg/kg	J	ERPD-FD
Barium, Total	6020	RCR-BD2	2108721-052A	270	20	mg/kg	J	ERPD-FD
Barium, Total	6020	RCR-SS10 (0.5')	2108A86-001A	370	9.7	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-SS10 (1')	2108A86-002A	280	8.2	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-SS11 (0.5')	2108A86-003A	380	10	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-SS11 (1')	2108A86-004A	340	9.8	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-BD7	2108A86-005A	270	8.1	mg/kg	J+	HR-LCS
Benzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.023	0.025	mg/kg	J+	HR-SUR, MDLRL
Benzene	SW8260B	RCR-SB5 (5')	2108721-027a	0.81	0.016	mg/kg	J	ERPD-FD
Benzene	SW8260B	RCR-BD2	2108721-052a	0.34	0.016	mg/kg	J	ERPD-FD
Benzene	SW8260B	RCR-SB1 (2.5')	2108721-002a	0.011	0.019	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.019	0.024	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.0098	0.024	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SS2 (0.5')	2108721-035a	0.013	0.017	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SS2 (1')	2108721-036a	0.011	0.016	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Benzo(a)anthracene	8270D	RCR-SB2 (2')	2108721-008A	0.689	0.263	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-SB5 (5')	2108721-027A	0.0959	0.0118	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-SB6 (3')	2108721-032A	0.96	0.247	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD1	2108721-051A	1.56	0.131	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD2	2108721-052A	0.543	0.0212	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD3	2108721-053A	2.88	0.0248	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD6	2108721-056A	0.163	0.0238	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SB5 (5')	2108721-027A	0.0908	0.0118	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SB6 (3')	2108721-032A	0.549	0.247	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD1	2108721-051A	0.612	0.131	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD2	2108721-052A	1.95	0.0212	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD3	2108721-053A	2.64	0.0248	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD6	2108721-056A	0.298	0.0238	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SB2 (2')	2108721-008A	ND	0.263	mg/kg	UJ	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SB2 (2')	2108721-008A	0.357	0.263	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SB5 (5')	2108721-027A	0.109	0.0118	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SB6 (3')	2108721-032A	0.314	0.247	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD1	2108721-051A	0.811	0.131	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD2	2108721-052A	0.704	0.0212	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD3	2108721-053A	1.21	0.0248	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD6	2108721-056A	0.164	0.0238	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SB5 (5')	2108721-027A	0.0766	0.0118	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SS9 (1')	2108721-050A	0.0523	0.0231	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Benzo(g,h,i)perylene	8270D	RCR-BD1	2108721-051A	0.444	0.131	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD2	2108721-052A	0.519	0.0212	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD3	2108721-053A	1.02	0.0248	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD5	2108721-055A	0.0787	0.026	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD6	2108721-056A	0.126	0.0238	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SB2 (2')	2108721-008A	ND	0.263	mg/kg	UJ	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SS3 (0.5')	2108721-037A	ND	0.498	mg/kg	UJ	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-SB5 (5')	2108721-027A	0.0160	0.0118	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-BD2	2108721-052A	0.148	0.0212	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-BD3	2108721-053A	1.12	0.0248	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-BD6	2108721-056A	0.152	0.0238	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Bis(2-ethylhexyl)phthalate	SW8270C	RCR-SB3 (5')	2108721-015a	3.3	5.0	mg/kg	J	MDLRL
Bromodichloromethane	SW8260B	RCR-SB1 (4')	2108721-003a	0.012	0.049	mg/kg	J+	HR-SUR, MDLRL
Bromodichloromethane	SW8260B	RCR-SB1 (5')	2108721-004a	0.026	0.047	mg/kg	J	MDLRL
Bromodichloromethane	SW8260B	RCR-SB3 (5')	2108721-015a	0.0094	0.048	mg/kg	J	MDLRL
Bromodichloromethane	SW8260B	RCR-BD6	2108721-056a	0.0053	0.031	mg/kg	J	MDLRL
Cadmium, Total	6020	RCR-SS3 (1')	2108721-038A	1.2	1.9	mg/kg	J	MDLRL
Chloroform	SW8260B	RCR-SB1 (4')	2108721-003a	0.011	0.049	mg/kg	J+	HR-SUR, MDLRL
Chloroform	SW8260B	RCR-SB1 (5')	2108721-004a	0.028	0.047	mg/kg	J	MDLRL
Chromium, Total	6020	RCR-SB1 (0')	2108721-001A	36	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (2.5')	2108721-002A	60	2.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (4')	2108721-003A	13	0.48	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (5')	2108721-004A	17	0.48	mg/kg	J+	HR-LCS

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Chromium, Total	6020	RCR-SB1 (7.5')	2108721-005A	20	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (8')	2108721-006A	21	0.52	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (0')	2108721-007A	26	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (2')	2108721-008A	47	0.97	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (2.5')	2108721-009A	28	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (5')	2108721-010A	15	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (7.5')	2108721-011A	20	0.51	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (8')	2108721-012A	21	0.52	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (0')	2108721-013A	19	0.50	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (2.5')	2108721-014A	16	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (5')	2108721-015A	13	0.48	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (7.5')	2108721-016A	11	0.42	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (8')	2108721-017A	12	0.39	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB4 (0')	2108721-018A	87	2.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB4 (2')	2108721-019A	20	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB4 (2.5')	2108721-020A	19	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB5 (5')	2108721-027A	13	2.1	mg/kg	J	ERPD-FD
Chromium, Total	6020	RCR-BD2	2108721-052A	6.0	1.0	mg/kg	J	ERPD-FD
Chromium, Total	6020	RCR-SS10 (0.5')	2108A86-001A	27	0.97	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SS10 (1')	2108A86-002A	19	0.51	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SS11 (0.5')	2108A86-003A	36	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SS11 (1')	2108A86-004A	30	0.98	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-BD7	2108A86-005A	17	0.50	mg/kg	J+	HR-LCS
Chrysene	8270D	RCR-SB2 (2')	2108721-008A	1.69	0.263	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-SB5 (5')	2108721-027A	0.302	0.0118	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-SS3 (0.5')	2108721-037A	0.731	0.498	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Chrysene	8270D	RCR-BD1	2108721-051A	5.23	0.131	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-BD2	2108721-052A	2.67	0.0212	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-BD5	2108721-055A	0.102	0.0260	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-BD6	2108721-056A	1.07	0.0238	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-SB5 (5')	2108721-027A	0.0432	0.0118	mg/kg	J	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-BD2	2108721-052A	0.271	0.0212	mg/kg	J	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-BD3	2108721-053A	0.518	0.0248	mg/kg	J	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Di-n-butylphthalate	SW8270C	RCR-SB4 (8')	2108721-023A	0.27	0.37	mg/kg	J	MDLRL
Di-n-butylphthalate	SW8270C	RCR-BD4	2108721-054a	0.32	0.38	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.021	0.049	mg/kg	J+	HR-SUR, MDLRL
Ethylbenzene	SW8260B	RCR-SB1 (5')	2108721-004a	0.032	0.047	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB2 (7.5')	2108721-011a	0.012	0.041	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB2 (8')	2108721-012a	0.036	0.042	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.029	0.048	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB3 (8')	2108721-017a	0.026	0.040	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SS7 (1')	2108721-046a	0.026	0.029	mg/kg	J	MDLRL
Fluoranthene	8270D	RCR-SB2 (2')	2108721-008A	0.458	0.263	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-SB5 (5')	2108721-027A	0.0128	0.0118	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-SB6 (3')	2108721-032A	0.464	0.247	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD1	2108721-051A	1.39	0.131	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD2	2108721-052A	0.111	0.0212	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD3	2108721-053A	1.29	0.0248	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD6	2108721-056A	0.654	0.0238	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Fluorene	8270D	RCR-SB2 (2')	2108721-008A	2.07	0.263	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-SB6 (3')	2108721-032A	3.54	0.247	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-SS3 (0.5')	2108721-037A	2.00	0.498	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD1	2108721-051A	6.78	0.131	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD2	2108721-052A	0.0732	0.0212	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD3	2108721-053A	0.411	0.0248	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD4	2108721-054A	0.0353	0.0127	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD6	2108721-056A	2.96	0.0238	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
Fluorene	8270D	RCR-SB5 (5')	2108721-027A	ND	0.0118	mg/kg	UJ	ERPD-FD
Fluorene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Fluorene	8270D	RCR-BD5	2108721-055A	ND	0.0260	mg/kg	UJ	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-SB5 (5')	2108721-027A	0.0302	0.0118	mg/kg	J	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-BD2	2108721-052A	0.225	0.0212	mg/kg	J	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-BD3	2108721-053A	0.340	0.0248	mg/kg	J	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Isopropylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.041	0.18	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.037	0.040	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB4 (5')	2108721-021a	0.016	0.026	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB4 (8')	2108721-023a	0.012	0.040	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.017	0.049	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SS5 (0.5')	2108721-041a	0.043	0.048	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SS5 (1')	2108721-042a	0.014	0.051	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-BD1	2108721-051a	0.033	0.17	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-BD4	2108721-054a	0.012	0.026	mg/kg	J	MDLRL
Lead, Total	6020	RCR-SB5 (5')	2108721-027A	11	2.1	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Lead, Total	6020	RCR-BD2	2108721-052A	ND	20	mg/kg	UJ	ERPD-FD
Mercury, Total	SW7471	RCR-SB5 (0')	2108721-024A	0.08	0.033	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SB6 (0')	2108721-030A	0.13	0.035	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS3 (1')	2108721-038A	0.031	0.031	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS7 (1')	2108721-046A	0.14	0.032	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS8 (0.5')	2108721-047A	0.11	0.031	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS9 (0.5')	2108721-049A	0.21	0.036	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SB4 (5')	2108721-021A	0.0063	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB4 (7.5')	2108721-022A	0.0068	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB4 (8')	2108721-023A	0.0065	0.036	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (2.5')	2108721-025A	0.14	0.15	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (4')	2108721-026a	0.0087	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (5')	2108721-027A	0.016	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (7.5')	2108721-028A	0.0069	0.035	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (8')	2108721-029A	0.0072	0.036	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB6 (2.5')	2108721-031A	0.0081	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB6 (3')	2108721-032A	0.0089	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS1 (0.5')	2108721-033A	0.0074	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS1 (1')	2108721-034A	0.0083	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS2 (0.5')	2108721-035A	0.0084	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS2 (1')	2108721-036A	0.0080	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS4 (0.5')	2108721-039A	0.013	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS4 (1')	2108721-040A	0.0069	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS5 (0.5')	2108721-041A	0.013	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS5 (1')	2108721-042A	0.017	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS6 (0.5')	2108721-043A	0.010	0.032	mg/kg	J+	HR-MS, MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Mercury, Total	SW7471	RCR-SS6 (1')	2108721-044A	0.0089	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS7 (0.5')	2108721-045A	0.10	0.17	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS8 (1')	2108721-048A	0.021	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-BD2	2108721-052A	0.012	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-BD3	2108721-053A	0.010	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-BD4	2108721-054A	0.0086	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (0')	2108721-001A	0.21	0.032	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB2 (0')	2108721-007A	0.094	0.033	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB4 (0')	2108721-018A	0.063	0.034	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB4 (2')	2108721-019A	0.068	0.033	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB1 (2.5')	2108721-002A	0.035	0.16	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (4')	2108721-003A	0.0054	0.035	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (5')	2108721-004A	0.0041	0.036	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (7.5')	2108721-005A	0.0035	0.031	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (8')	2108721-006A	0.0043	0.035	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (2.5')	2108721-009A	0.029	0.036	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (5')	2108721-010A	0.0054	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (7.5')	2108721-011A	0.0045	0.036	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (8')	2108721-012A	0.0050	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (0')	2108721-013A	0.031	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (2.5')	2108721-014A	0.011	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (5')	2108721-015A	0.022	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (7.5')	2108721-016A	0.0082	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (8')	2108721-017A	0.012	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB4 (2.5')	2108721-020A	0.0084	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS3 (0.5')	2108721-037A	0.20	0.031	mg/kg	J+	ERPD-FD, HR-MS

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Mercury, Total	SW7471	RCR-SS9 (1')	2108721-050A	0.21	0.033	mg/kg	J+	ERPD-FD, HR-MS
Mercury, Total	SW7471	RCR-BD1	2108721-051A	0.12	0.034	mg/kg	J+	ERPD-FD, HR-MS
Mercury, Total	SW7471	RCR-BD6	2108721-056A	0.043	0.036	mg/kg	J+	ERPD-FD, HR-MS
Mercury, Total	SW7471	RCR-BD5	2108721-055A	0.030	0.031	mg/kg	J+	ERPD-FD, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (2')	2108721-008A	0.062	0.031	mg/kg	J+	ERPD-FD, ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SS10 (0.5')	2108A86-001A	0.39	0.16	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-SS11 (0.5')	2108A86-003A	0.095	0.032	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-SS11 (1')	2108A86-004A	0.14	0.035	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-BD7	2108A86-005A	0.079	0.033	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-SS10 (1')	2108A86-002A	0.011	0.034	mg/kg	J-	ERPD-FD, LR-LCS, MDLRL
MTBE	SW8260B	RCR-SB5 (5')	2108721-027a	0.35	0.032	mg/kg	J	ERPD-FD
MTBE	SW8260B	RCR-BD2	2108721-052a	0.071	0.031	mg/kg	J	ERPD-FD
MTBE	SW8260B	RCR-SB3 (5')	2108721-015a	0.032	0.048	mg/kg	J	MDLRL
Naphthalene	8270D	RCR-SB2 (2')	2108721-008A	0.441	0.263	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SB5 (5')	2108721-027A	0.0337	0.0118	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SB6 (3')	2108721-032A	26.6	0.247	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SS3 (0.5')	2108721-037A	5.50	0.498	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD1	2108721-051A	1.14	0.131	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD2	2108721-052A	0.137	0.0212	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD3	2108721-053A	50.6	0.248	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD4	2108721-054A	0.200	0.0127	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD5	2108721-055A	0.0767	0.0260	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD6	2108721-056A	14.1	0.475	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
Naphthalene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Naphthalene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.035	0.061	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Naphthalene	SW8260B	RCR-SB3 (5')	2108721-015a	0.063	0.097	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.035	0.078	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SB4 (5')	2108721-021a	0.017	0.052	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SB4 (8')	2108721-023a	0.030	0.081	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SB6 (2.5')	2108721-031A	33	39	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SB6 (3')	2108721-032A	57	100	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SS3 (0.5')	2108721-037A	24	39	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SS3 (1')	2108721-038A	26	39	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SS4 (1')	2108721-040a	2.1	3.9	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SS7 (1')	2108721-046a	0.022	0.058	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-BD4	2108721-054a	0.015	0.052	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.021	0.15	mg/kg	J+	HR-SUR, MDLRL
n-Butylbenzene	SW8260B	RCR-SB1 (5')	2108721-004a	0.017	0.14	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.054	0.53	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB3 (0')	2108721-013a	0.082	0.10	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB4 (2')	2108721-019a	0.085	0.73	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.039	0.12	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB4 (8')	2108721-023a	0.012	0.12	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB5 (5')	2108721-027a	0.034	0.096	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.038	0.15	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS2 (0.5')	2108721-035a	0.089	0.10	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS5 (0.5')	2108721-041a	0.14	0.15	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS5 (1')	2108721-042a	0.077	0.15	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS6 (1')	2108721-044a	0.037	0.11	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS7 (1')	2108721-046a	0.011	0.086	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-BD2	2108721-052a	0.037	0.094	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
n-Propylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.035	0.049	mg/kg	J+	HR-SUR, MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (2.5')	2108721-002a	0.028	0.039	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (5')	2108721-004a	0.021	0.047	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (7.5')	2108721-005a	0.031	0.10	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (8')	2108721-006a	0.0084	0.045	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.094	0.18	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.021	0.031	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.017	0.048	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.022	0.039	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (8')	2108721-017a	0.0093	0.04	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB4 (2')	2108721-019a	0.094	0.24	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB4 (7.5')	2108721-022a	0.016	0.037	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB5 (4')	2108721-026a	0.047	0.23	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SS6 (1')	2108721-044a	0.0078	0.037	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SS7 (1')	2108721-046a	0.018	0.029	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-BD1	2108721-051a	0.064	0.17	mg/kg	J	MDLRL
Phenanthrene	8270D	RCR-SB2 (2')	2108721-008A	3.41	0.263	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-SB6 (3')	2108721-032A	8.20	0.247	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-SS3 (0.5')	2108721-037A	3.71	0.498	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD1	2108721-051A	8.75	0.131	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD2	2108721-052A	0.148	0.0212	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD3	2108721-053A	16.7	0.0248	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD4	2108721-054A	0.106	0.0127	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD5	2108721-055A	0.0605	0.026	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD6	2108721-056A	3.57	0.0238	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Phenanthrene	8270D	RCR-SB5 (5')	2108721-027A	ND	0.0118	mg/kg	UJ	ERPD-FD
Phenanthrene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Phenol	SW8270C	RCR-SB2 (8')	2108721-012a	0.14	0.20	mg/kg	J	MDLRL
Phenol	SW8270C	RCR-SB5 (8')	2108721-029A	0.091	0.20	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB1 (4')	2108721-003a	0.021	0.049	mg/kg	J+	HR-SUR, MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB1 (5')	2108721-004a	0.021	0.047	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB1 (7.5')	2108721-005a	0.053	0.10	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB2 (2')	2108721-008a	0.049	0.18	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB3 (0')	2108721-013a	0.015	0.034	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB4 (0')	2108721-018a	0.074	0.25	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB4 (2')	2108721-019a	0.11	0.24	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SS5 (0.5')	2108721-041a	0.039	0.048	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SS5 (1')	2108721-042a	0.035	0.051	mg/kg	J	MDLRL
Pyrene	8270D	RCR-SB2 (2')	2108721-008A	2.05	0.263	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SB5 (5')	2108721-027A	0.362	0.0118	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SB6 (3')	2108721-032A	2.47	0.247	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SS3 (0.5')	2108721-037A	1.61	0.498	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD1	2108721-051A	6.49	0.131	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD2	2108721-052A	2.73	0.0212	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD3	2108721-053A	4.98	0.0248	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD4	2108721-054A	0.0266	0.0127	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD5	2108721-055A	0.053	0.026	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD6	2108721-056A	1.97	0.0238	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
Pyrene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Selenium, Total	6020	RCR-BD2	2108721-052A	3.5	1.0	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Selenium, Total	6020	RCR-SB5 (5')	2108721-027A	1.4	2.1	mg/kg	J	ERPD-FD, MDLRL
Selenium, Total	6020	RCR-SB1 (0')	2108721-001A	1.3	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB4 (0')	2108721-018A	2.0	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB4 (7.5')	2108721-022A	1.7	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (2.5')	2108721-025A	1.5	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (4')	2108721-026A	1.6	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (7.5')	2108721-028A	1.7	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (8')	2108721-029A	1.8	2.1	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB6 (0')	2108721-030A	1.3	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB6 (2.5')	2108721-031A	1.4	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB6 (3')	2108721-032A	1.5	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS1 (0.5')	2108721-033A	1.3	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS1 (1')	2108721-034A	1.7	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS2 (0.5')	2108721-035A	1.5	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS2 (1')	2108721-036A	1.6	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS3 (1')	2108721-038A	1.1	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS4 (0.5')	2108721-039A	1.4	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS4 (1')	2108721-040A	1.4	2.1	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS5 (0.5')	2108721-041A	1.3	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS6 (0.5')	2108721-043A	1.5	2.0	mg/kg	J	MDLRL
Styrene	SW8260B	RCR-SS3 (1')	2108721-038a	0.022	0.055	mg/kg	J	MDLRL
tert-Butylbenzene	SW8260B	RCR-SB6 (2.5')	2108721-031a	0.063	0.066	mg/kg	J	MDLRL
tert-Butylbenzene	SW8260B	RCR-SB6 (3')	2108721-032a	0.14	0.41	mg/kg	J	MDLRL
tert-Butylbenzene	SW8260B	RCR-SS2 (1')	2108721-036a	0.010	0.032	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB1 (4')	2108721-003a	0.011	0.049	mg/kg	J+	HR-SUR, MDLRL
Toluene	SW8260B	RCR-SB1 (0')	2108721-001a	0.011	0.044	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Toluene	SW8260B	RCR-SB2 (2')	2108721-008a	0.026	0.18	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB2 (7.5')	2108721-011a	0.023	0.041	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB3 (0')	2108721-013a	0.0051	0.034	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB4 (2')	2108721-019a	0.041	0.24	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB6 (2.5')	2108721-031a	0.018	0.066	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB6 (3')	2108721-032a	0.24	0.41	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.012	0.027	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS1 (1')	2108721-034a	0.0051	0.035	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS2 (1')	2108721-036a	0.0079	0.032	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS7 (1')	2108721-046a	0.0069	0.029	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS8 (0.5')	2108721-047a	0.0058	0.037	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS9 (1')	2108721-050a	0.0085	0.039	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-BD6	2108721-056a	0.0043	0.031	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SS5 (1')	2108721-042A	2,200	49	mg/kg	J+	HR-SUR
TPH DRO	SW8015	RCR-SB2 (2')	2108721-008A	24,000	980	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-SB5 (5')	2108721-027A	1,200	470	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-BD1	2108721-051A	46,000	490	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-BD2	2108721-052A	710	200	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-SB3 (5')	2108721-015A	6.4	9.9	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SB3 (8')	2108721-017A	6.3	9.1	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SB5 (7.5')	2108721-028A	9.5	9.8	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SS9 (1')	2108721-050A	9.4	9.6	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB1 (4')	2108721-003a	9.6	4.9	mg/kg	J+	HR-MS
TPH GRO	SW8015	RCR-SB1 (5')	2108721-004a	37	4.7	mg/kg	J+	HR-MS
TPH GRO	SW8015	RCR-SB3 (5')	2108721-015a	5.0	4.8	mg/kg	J+	HR-MS
TPH GRO	SW8015	RCR-SB6 (0')	2108721-030a	2.8	4.9	mg/kg	J+	HR-MS, MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
TPH GRO	SW8015	RCR-SS8 (1')	2108721-048a	1.6	4.9	mg/kg	J+	HR-MS, MDLRL
TPH GRO	SW8015	RCR-SB1 (2.5')	2108721-002a	2.2	3.9	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB3 (7.5')	2108721-016a	3.0	3.9	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB3 (8')	2108721-017a	1.5	4.0	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB4 (7.5')	2108721-022a	2.9	3.7	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SS6 (0.5')	2108721-043a	1.1	3.4	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-BD6	2108721-056a	1.2	3.1	mg/kg	J	MDLRL
TPH ORO	SW8015	RCR-SS5 (1')	2108721-042A	390	250	mg/kg	J+	HR-SUR
TPH ORO	SW8015	RCR-SB2 (2')	2108721-008A	5,300	4,900	mg/kg	J	ERPD-FD
TPH ORO	SW8015	RCR-BD1	2108721-051A	9,500	2,400	mg/kg	J	ERPD-FD
Xylenes, Total	SW8260B	RCR-SB1 (0')	2108721-001a	0.039	0.088	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB1 (5')	2108721-004a	0.052	0.094	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB1 (7.5')	2108721-005a	0.18	0.20	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB1 (8')	2108721-006a	0.082	0.091	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB2 (8')	2108721-012a	0.048	0.084	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.017	0.055	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SS2 (1')	2108721-036a	0.048	0.064	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SS9 (0.5')	2108721-049a	0.035	0.070	mg/kg	J	MDLRL

ATTACHMENT C

REVISED REPORT

WESTERN REFINING SOUTHWEST LLC

D/B/A MARATHON GALLUP REFINERY

RAIL CAR LOADING AREA RELEASE SOIL SAMPLING INVESTIGATION REPORT

DECEMBER 12, 2021

REVISED DECEMBER 31, 2022

REVISED FEBRUARY 28, 2024

Executive Summary

Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery (Refinery), is submitting this investigation report for sampling of soils at the rail car loading area to evaluate if hydrocarbon impacts exist in the area. The sampling was conducted to determine if additional investigation or soil excavation would be necessary following historical releases. The sampling took place during the weeks of August 9, 2021 and August 16, 2021. Sampling was conducted in accordance with an approved revised work plan submitted to the New Mexico Environment Department (NMED) on April 30, 2021 (MPC 2021) and approved by NMED on June 15, 2021 (NMED 2021).

On May 7, 2017, a hydrocarbon spill was discovered pooling underneath the pipe rack located along the west side of the rail car loading area (see Section 1.1, Figure 2). An estimated 8,900 gallons of recovered gasoline were placed in a slop tank. At that time, no soil confirmation samples were collected. The on-site laboratory analyzed one release sample, which verified that the released product was gasoline. In an effort to remove impacts, approximately 153 tons of impacted soils were excavated from beneath the pipe rack in November 2018 (MPC 2020).

On March 13, 2019, diesel was discovered leaking in the rail car loading area due to a connection failure on the diesel filter pot. Diesel leaked across the railroad tracks into a culvert carrying product into the stormwater ditch (see Section 2.1, Figure 2). An estimated 42 barrels were released; 40 barrels were recovered via vacuum truck and 2 barrels were not recovered.

The August 2021 investigation field work consisted of:

- Collection of surface soil samples within the gasoline release and diesel release areas
- Installation of soil borings to observe visual impacts, collection of photoionization detector (PID) readings, and collection of soil samples from the borings.
- Collection of equipment blanks and blind duplicates at a rate of 10 percent.

The soil surface samples were collected using a hand auger and hand trowels, and soil borings were completed with a Geoprobe direct push rig. All samples were analyzed for total petroleum hydrocarbons (TPH)– diesel range organics (DRO), TPH – gasoline range organics (GRO), TPH – oil range organics (ORO), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total metals, and mercury. The results were compared with NMED Industrial, Construction Worker, and Residential Soil Screening Levels (SSLs), dated November 2021. Toxicity Characteristic Leaching Procedure was deemed not necessary, based on the total metals results. Detected NMED Residential SSLs exceedances were identified for the following analytes:

- SVOCs by Selected Ion Monitoring (SIM)
    - Benzo(a)pyrene
    - Dibenzo(a,h)anthracene
    - Naphthalene

The Refinery is an industrial site and acknowledges that if sampling shows that residential exceedances persist, then the Refinery will implement institutional controls to mitigate the risks to residential receptors. It should be noted that none of the VOC, SVOC, or metals exceedances were detected results. However, several sample locations had elevated reporting limits and those reporting limits exceeded their respective NMED Industrial, Construction Worker, and/or Residential SSLs for the constituents noted below:

- VOCs
  - 1,2-Dibromo-3-chloropropane
  - 1,2,3-Trichloropropane
- SVOCs:
  - Bis(2-chloroethyl)ether
  - Bis (2-ethylhexyl)phthalate
  - 2-Chlorophenol
  - 3,3'-Dicholorobenzidine
  - 2,4-Dichlorophenol
  - 2,4-Dinitrophenol
  - 2,4-Dinitrotoluene
  - 2,6-Dinitrotoluene
  - 1,2,4-Trichlorobenzene
  - Hexachlorobenzene
  - Hexachlorobutadiene
  - Hexachlorocyclopentadiene
  - Hexachloroethane
  - Nitrobenzene
  - N-Nitrosodimethylamine
  - 2,4,6-Trichlorophenol
  - Pentachlorophenol
- Metals:
  - Arsenic
- General chemistry analytes:
  - TPH-DRO
  - TPH-GRO
  - TPH-ORO

Based on the analytical data and field observations collected to date, a Phase II Investigation Work Plan (IWP) will be composed to guide the next steps of this investigation. Laboratory confirmation sampling will be proposed for use in the Phase II IWP to extend the excavation boundaries until soil concentrations are below the applicable screening levels. Floor and wall confirmation samples will be collected and analyzed for the same analytical suite as this investigation. The Phase II IWP will be submitted to NMED by May 1, 2024.

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B. Laboratory Analytical Reports

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List of Acronyms

bgs	below ground surface
DAF	dilution attenuation factor
DRO	diesel range organics
ft	foot or feet
GRO	gasoline range organics
HP	Hydraulic Profiling
IWP	Investigation Work Plan
LIF	Laser-induced Fluorescence
NMED	New Mexico Environment Department
ORO	oil range organics
PID	photoionization detector
ppm	parts per million
Refinery	Marathon Gallup Refinery
SIM	selected ion monitoring
SSL	Soil Screening Level
SVOC	semivolatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total petroleum hydrocarbons
Trihydro	Trihydro Corporation
VOC	volatile organic compounds

1.0 Introduction

Western Refining Southwest LLC (D/B/A Marathon Gallup Refinery [Refinery]) is submitting this investigation report for the sampling of soils at the rail car loading area for hydrocarbon impacts due to historical releases. The sampling was conducted to determine if additional investigation or soil excavation is necessary. The sampling took place during the weeks of August 9, 2021 and August 16, 2021. Sampling was conducted in accordance with the approved revised work plan submitted to the New Mexico Environment Department (NMED) on April 30, 2021 (MPC 2021) and approved by NMED on June 15, 2021 (NMED 2021).

1.1 Background

The Refinery is located approximately 17 miles east of Gallup, McKinley County, New Mexico along the north side of Interstate Highway I-40 (Figure 1). The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Refinery property covers approximately 810 acres and is currently indefinitely idled.

As detailed in "Response Action Report, DGS 105 Additive Tank – Rail Car Loading Area – Gasoline Release" (MPC 2020), approximately 8,900 gallons of gasoline were released under the rail car loading rack on May 7, 2017. In November 2018, approximately 153 tons of petroleum-impacted soils beneath the pipe rack were excavated to a depth of 18 inches below ground surface (bgs) (MPC 2020). Based on the analytical data from the excavation, the release was not anticipated to extend further into the subsurface. However, soil confirmation samples were not collected, and this assumption was not confirmed. On March 13, 2019, an estimated 1,765 gallons of diesel were released in the same area. Of the 42 barrels (1,765 gallons) released, approximately 40 barrels (1,680 gallons) were recovered via vacuum truck.

1.2 Historic Sampling and Results

Prior sampling around the Rail Car Loading area was conducted during the 2019 Laser-induced Fluorescence (LIF)/Hydraulic Profiling (HP) Investigation. LIF borings EB-LIF-12, EB-LIF-13, EB-LIF-14 are located near the Rail Car Loading area. Boring EB-LIF-12 showed a response indicative of gasoline, EB-LIF-13 showed a response indicative of diesel, and EB-LIF-14 did not have a response indicative of a specific hydrocarbon product. More information on the LIF/HP Investigation can be found in the "Tank 570 and Additional Areas Laser-Induced Fluorescence/Hydraulic Profiling Investigation Report," submitted to NMED on October 28, 2021.

1.3 Sampling Activities Per the Approved Work Plan

A revised Work Plan (MPC 2021) was submitted and approved by the NMED in June 2021 (NMED 2021), and consisted of the following major elements:

- Collect soil samples within the gasoline release excavation area
- Install soil borings to observe impacts, collect photoionization detector (PID) readings for evidence of impacts, and collect soil samples from the borings at the surface and then at 2.5-foot (ft) intervals until 8 ft bgs.

- Analysis of samples using field screening with a PID, and submission of laboratory samples for analysis of total petroleum hydrocarbons (TPH) – diesel range organics (DRO) by Method 8015M/D, TPH - gasoline range organics (GRO) by Method 8015D, TPH – oil range organics (ORO) by Method 8015, volatile organic compounds (VOCs) by Method 8260B/1311, semivolatile organic compounds (SVOCs) by Method 8270/8270SIM, total metals by Method 6020, and mercury by Method 7471.
- Analysis of Toxicity Characteristic Leaching Procedure (TCLP) metals by Method 6010B, if deemed necessary based on total metals results.
- Duplicate samples and equipment blanks for the purpose of quality assurance.
- Analytical results comparison against NMED Residential and Industrial Soil Screening Levels (SSLs) (NMED 2019).

2.0 Field Investigation Results

Trihydro Corporation (Trihydro) conducted field activities and sampling during the weeks of August 9, and August 16, 2021. The samples were collected from 17 locations, including 6 soil borings and 11 surface soil sample locations. Boring sample depths ranged from surface to 8 ft bgs. The samples were generally collected in the locations presented in the Work Plan (MPC 2021) but deviated slightly based on the conditions observed in the rail car loading area during the sampling, as discussed in Section 2.3.

2.1 Summary of Field Sampling Activities

A total of 54 samples plus 7 duplicate samples, and 7 equipment blanks were collected from the release area in August 2021. Both surface soil samples and soil samples from borings were collected. Additionally, PID readings were collected in the field from all soil borings. Sample locations are shown on Figure 2.

Surface soil samples were collected using a hand trowel or hand auger. Surface samples were taken at 11 different locations within the known diesel and gasoline release area. At each location, a sample was collected at 6 inches bgs and 1 ft bgs.

Soil borings were installed at six different locations surrounding the known diesel and gasoline release areas. A Geoprobe was used to complete the borings. Field samples were collected at 1 ft intervals starting at the surface through to the total boring depth. These samples were placed in a Ziploc® bag and allowed to warm to 70 degrees Fahrenheit. The headspace was measured for petroleum hydrocarbons with a PID and recorded on the boring logs. All PID readings collected are shown on Table 1. Similarly, analytical samples from the borings were collected first at the surface, and then at 2.5-ft intervals to the total boring depth of 8 ft bgs. An additional sample was collected if signs of contamination (i.e., the highest PID reading) was recorded outside the proposed sampling interval of every 2.5 ft. Total depth was achieved at five of the soil borings; one boring was completed at 3 ft bgs due to encountering a concrete pad.

All soils obtained for analysis were also visually inspected and classified in the field, in general accordance with American Society for Testing and Materials D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils) by a field geologist. All observations were recorded in boring logs (Attachment A). The samples were placed in laboratory provided sample containers, labeled, and placed in a cooler containing a trip blank, iced, and delivered to Hall Environmental Laboratories for analysis for TPH-DRO by Method 8015M/D, TPH-GRO by Method 8015D, TPH-ORO by Method 8015, VOCs by Methods 8260B and 1311, SVOCs by Methods 8270 and 8270SIM, total metals by Method 6020, and mercury by Method 7471.

2.2 Field Observations

This investigation focused on three impacted areas, shown in red and green on Figure 2. The first area is west of the rail car loading area. Impacts from gasoline and diesel releases were presumed to be present in this area. The second area is east of the rail car loading area. Diesel release impacts were presumed to be present in this area, as the diesel spill that occurred in the first area was able to travel east via a stormwater culvert. The

third area is north of the second area, as a stormwater conveyance ditch allowed diesel from the same spill to travel into this third area.

Four soil borings (RCR-SB-3, RCR-SB-4, RCR-SB-5, and RCR-SB-6) were installed around the first area. Soils in these borings were visually impacted from hydrocarbons, as a smear zone was present, and accompanied by a hydrocarbon smell. Six surface soil sample locations (RCR-SS1 through RCR-SS6) were also collected from around or within this first area. A hydrocarbon odor was noted from the soil samples.

Two soil borings (RCR-SB-1 and RCR-SB-2) and three surface soil sample locations (RCR-SS7, RCR-SS8, and RCR-SS9) were installed in the second area. A hydrocarbon smell was noted throughout RCR-SB-1, with hydrocarbon staining towards the bottom of the boring. Pockets of tar were observed in soil boring RCR-SB-2.

Two surface soil samples (RCR-SS10 and RCR-SS11) were collected from the third area. No soil borings were installed in this area, as summarized in Section 2.3. Both surface soil samples were noted to be all reddish-brown clay with no hydrocarbon odor and no hydrocarbon staining.

Completed soil boring logs can be referenced in Attachment A.

2.3 Deviations from Approved Plan

Deviations from the sampling plan approved by NMED (NMED 2021) included the following:

- Completion of RCR-SB-6:
    - Per the approved Work Plan, soil borings were to be completed to a depth of 8 ft bgs. RCR-SB-6 was only completed to a depth of 3 ft bgs, due to a concrete pad encountered at 3 ft bgs. Samples from RCR-SB-6 were collected in accordance with the Work Plan.
- Completion of a soil boring in the third area:
    - Per the approved Work Plan, a soil boring was to be completed to a depth of 8 ft bgs in the northern stormwater culvert. However, field work was conducted during a period of heavy rains, and stormwater runoff from the eastern side of the Refinery collected in this stormwater culvert. As such, the approved proposed soil boring location was under approximately 3 to 4 ft of water. Several attempts were made to drain this stormwater culvert, but afternoon rains refilled the culvert. Additionally, the mud in this area made it impossible to position the drill rig safely. Due to these circumstances, this soil boring was not completed. The Refinery will include the installation of this soil boring in the Phase II Investigation Work Plan (IWP) that will be submitted to NMED by May 1, 2024.

- Analysis of mercury by Method 7470:
    - Per the approved Work Plan, samples were to be analyzed for mercury by Method 7470. However, Method 7470 is the method for groundwater analysis. Method 7471 is the method for soil analysis. Because all samples collected during this investigation were soil samples, the samples were analyzed for mercury by Method 7471.

3.0 Laboratory Analytical Results

Results of the various parameters with applicable standards are presented in the following tables:

- Table 2 – VOCs
- Table 3A – SVOCs
- Table 3B – SVOCs by Selected Ion Monitoring analysis
- Table 4 – Metals
- Table 5 – General Chemistry

Tables 2 through 5 were compared to NMED Residential, Industrial, and Construction Worker SSLs. Non-detect reporting limit exceedances are noted with an asterisk (*) on Tables 2 through 5. Analytical laboratory reports are included in Attachment B. Results for TPH-DRO and TPH-GRO are shown on Figure 3.

3.1 VOCs

The sample results of VOCs compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Table 2. No Industrial or Construction Worker SSL exceedances were identified for VOCs. Residential SSL exceedances were identified for two VOCs, but these exceedances are data quality exceptions in which the reporting limit of a non-detect result is greater than the applicable SSL. The two VOCs with Residential SSL exceedances are:

- 1,2-Dibromo-3-chloropropane
- 1,2,3-Trichloropropane

3.2 SVOCs

The sample results of SVOCs compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Tables 3A and 3B. Reporting limits exceedances of Residential, Industrial, and/or Construction Worker SSLs were identified for 20 SVOCs, but most exceedances are for non-detect results. The 17 non-detect SVOCs are:

- Bis(2-chloroethyl)ether
- 2-Chlorophenol
- 3,3'-Dichlorobenzidine
- 2,4-Dichlorophenol
- 2,4-Dinitrophenol
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Nitrobenzene

- N-Nitrosodimethylamine
- Pentachlorophenol
- 1,2,4-Trichlorobenzene
- 2,4,6-Trichlorophenol
- Bis(2-ethylhexyl)phthalate

The Residential SSL reporting limit exceedances for the 3 SVOCs by SIM analysis are:

- Benzo(a)pyrene
- Dibenzo(a,h)anthracene
- Naphthalene

It should be noted that several of the samples where reporting limits exceeded NMED Residential, Industrial, or Construction Worker SSLs required dilution for analysis due to elevated target and/or non-target analytes, as indicated by TPH-DRO, TPH-GRO, and/or TPH-ORO results. For example, RCR-SB-6 (3 ft) has a dilution factor of 50 and RCR-SB-2 (2ft) has a dilution factor of 100 for SVOC analysis. This dilution caused the SVOC reporting limits on some samples to be elevated. Therefore, this dilution may be a contributing factor in the number of non-detect, reporting limit exceedances identified for SVOCs.

3.3 Metals

The sample results of metals compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Table 4. No Industrial or Construction Worker SSL exceedances were identified for metals. Residential SSL exceedances were identified for total arsenic, but these exceedances are data quality exceptions in which the reporting limit of a non-detect result is greater than the applicable SSL.

The analysis performed on the samples collected for this investigation was total constituent analysis, not TCLP. TCLP analysis is typically performed for characterization of waste prior to disposal for purposes of hazardous waste characterization. Total constituent analysis is sometimes performed in lieu of the TCLP analysis, by multiplying the TCLP standard by 20 to compare to the results of the total constituent analysis. The TCLP standards multiplied by 20 are presented in Table 4, for comparison to the analytical results. There were no analytes with concentrations (detected or non-detected) that exceeded the TCLP standards multiplied by 20. As such, TCLP analysis was deemed not necessary, in accordance with the approved Work Plan. The final characterization of the material can be determined during waste profiling.

3.4 General Chemistry

The sample results for general chemistry analytes compared to their respective NMED Residential, Industrial, and Construction Worker SSLs are provided in Table 5. Industrial SSL exceedances were identified for TPH-DRO, TPH-GRO, and TPH-ORO.

3.5 QA/QC Samples

Three methanol blank samples were provided by the laboratory as trip blanks. These samples were sent in the coolers by the laboratory and were not altered between sampling and analysis. There were no analytes detected in the trip blank samples.

Tier II data validation was performed on the data package provided by the laboratory. The Tier II data validation included a review of the completeness of the data packages, chain of custody forms, sample condition receipts, sample preservations, holding times, the case narrative, and the quality control summary. Several data points were assigned data qualifiers during Tier II data validation indicating one or more results are an estimated concentration ("J"), an estimated concentration but may be biased low ("J-"), an estimated concentration but may be biased high ("J+"), an estimated reporting limit ("UJ"), or evaluated to be undetected at the reporting limit ("U"). No data points were rejected and the data completeness for this data set is 100 percent acceptable. A Tier II data validation report is presented in Attachment C.

3.6 Correlation of Analytical Results with PID Field Screening

PID results were compared to the TPH results collected from the same sample. PID results are included in Table 1 and TPH results are included in Table 5. Results indicate a potential positive correlation between elevated PID readings (i.e., greater than or equal to 100 parts per million[ppm]) and Industrial SSL exceedances identified for TPH-DRO, TPH-GRO, and TPH-ORO. There is also potential positive correlation between the PID readings, analytical results, and soil characteristics observed in the field. Therefore, the Phase II IWP will propose to collect PID readings in addition to laboratory confirmation samples.

3.7 Analytical Results Summary

Of the 53 samples, 39 samples had non-detect SVOC results that exceeded their respective Industrial or Construction Worker SSLs, and 8 samples had TPH results that exceeded their respective Industrial or Construction Worker SSLs. Results also indicate a positive correlation between elevated PID readings and TPH exceedances. The data presented in Section 3.0 will be used to compose the Phase II IWP.

Samples with detected results were also compared against the NMED dilution attenuation factor (DAF) SSLs. An evaluation was conducted to determine whether an interim response is required to protect the migration of contaminants that exceeded the NMED DAF SSL from the vadose zone to groundwater. The evaluation was performed by creating data tables (Table 6 and Table 7) used in Table 8 in a lines-of-evidence evaluation to determine whether an interim response is needed. Table 6 shows soil sample analytical data of detected constituents that exceeded the NMED Construction DAF 20 SSLs and Table 7 shows groundwater analytical data compared to the 2022 NMED groundwater Cleanup Levels with exceedances of the same constituents identified in Table 6 from nearby wells (OW-58, OW-58A, and RW-01). Based on the lines-of-evidence evaluation presented in Table 8, the Refinery does not believe that an interim response is required for the purpose of protecting contaminant migration to groundwater because all but three of the constituents with DAF SSL exceedances have had groundwater screening level exceedances in nearby wells. The three constituents with DAF SSL exceedances not found in nearby wells, have maximum detections within one order of magnitude or less than the DAF SSL.

4.0 Conclusions

This investigation was conducted to characterize soils in the rail car loading area for future excavation. Based on the results of the investigation, the Refinery will propose to extend the excavation boundaries west of RCR-SB-4, north of RCR-SB-5, north of RCR-SB-2, south of RCR-SB-1, and east and west of RCR-SB1 and RCR-SB-2 until soil concentrations in floor and sidewall confirmation sampling shows that soil concentrations are below the applicable screening levels in the Phase II IWP. If confirmation sampling shows cleanup has been achieved to meet Industrial and Construction Worker SSLs, but not Residential SSLs, then appropriate controls will be required to be in place to maintain the site as an industrial site and manage residual risk. One soil boring will be installed at a later date, which will be included in the Phase II IWP that will be submitted to NMED by May 1, 2024.

Significant findings of this investigation include:

- No VOC or SVOC SIM Industrial or Construction Worker SSL exceedances
- 46 samples with 1 or more SVOC reporting limit Industrial or Construction Worker SSL exceedance
- No metals Industrial or Construction Worker SSL exceedances
- 11 samples with 1 or more TPH Industrial or Construction Worker SSL exceedance

The results provide a basis for composing the Phase II IWP. The proposed analytical suite for floor and wall confirmation samples will be the same as collected for this investigation and discussed in the Phase II IWP. The proposed confirmation sampling interval will be outlined in the Phase II IWP and sample results will be compared to NMED Residential, Industrial, and Construction Worker SSLs. Additionally, details of the procedure for confirmation sampling and excavation will be included in the Phase II IWP.

The Refinery will submit the Phase II IWP by May 1, 2024.

5.0 References

Marathon Petroleum Corporation (MPC). 2020. Response Action Report, DGS 105 Additive Tank – Rail Car Loading Area – Gasoline Release, Marathon Petroleum Company LP, Gallup Refinery (dba Western Refining Southwest, Inc.), EPA ID #NMD000333211, WRG-17-MISC. January 6.

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New Mexico Environment Department (NMED). 2019. Risk Assessment Guidance for Site Investigations and Remediation, Volume I, Soil Screening Guidance for Human Health Risk Assessments. Tables 6-2 and A-1. February. Revision 2, June 19.

NMED. 2021. Approval, Response to Disapproval Rail Car Loading Area Release Soil Sampling Investigation Work Plan, Western Refining Southwest Inc., Gallup Refinery, EPA ID #NMD000333211, HWB-WRG-21-001. June 15.

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Figures



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EXPLANATION

PROPERTY BOUNDARY (APPROXIMATE)

GENERAL RELEASE AREA

TANK

N

0 800'

Trihydro CORPORATION
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Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 1

REFINERY AND RAIL CAR LOADING AREA LOCATION
RAIL CAR LOADING AREA RELEASE

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

Drawn By:	Checked By:	Scale:	Date:	File:
REP	MS	1" = 800'	8/25/21	697-REFINERYLOC-202108

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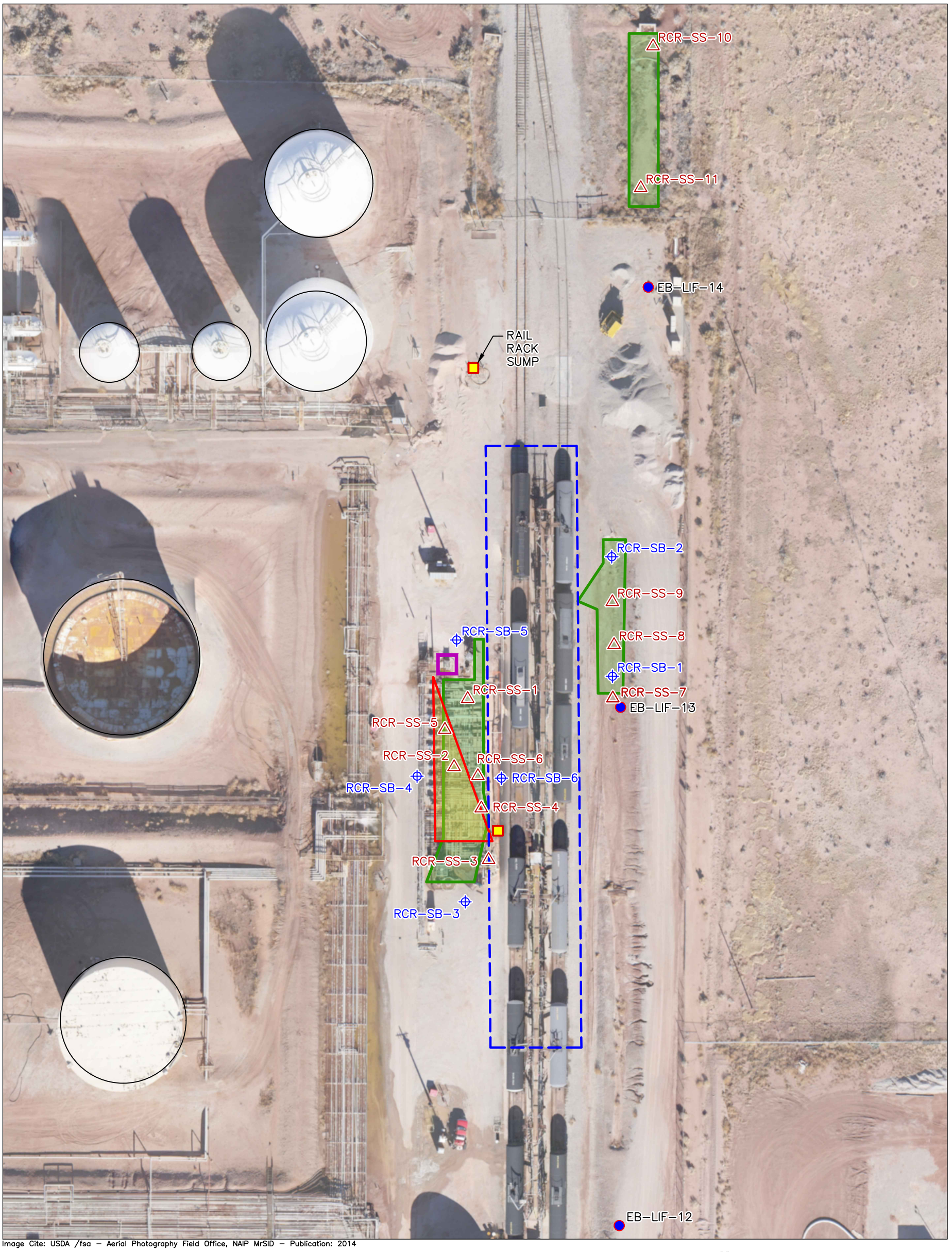


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EXPLANATION

- RCR-SB-3 — SOIL BORING AND DESIGNATION
- RCR-SS-3 — SOIL SAMPLE AND DESIGNATION
- EB-LIF-12 — 2019 LIF LOCATION AND DESIGNATION
- RAIL CAR LOADING AREA
- TANK
- DIESEL RELEASE EXTENT (MARCH 13, 2019)
- GASOLINE RELEASE EXTENT (MAY 7, 2017)
- DGS 105 ADDITIVE TANK
- RAIL RACK SUMP OR SEWER BOX

N

0 60'

M:\TFON\MARATHON\CADD\GALLUP_REPORTS\AOC\AOC17_RAILCARRELEASE\697-AOC17-GPSSAMPLOCS-202110

Trihydro CORPORATION
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FIGURE 2

SAMPLE LOCATIONS
RAIL CAR LOADING AREA RELEASE

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

Drawn By: REP	Checked By: EC	Scale: 1" = 60'	Date: 11/22/21	File: 697-AOC17-GPSSAMPLOCS-202110

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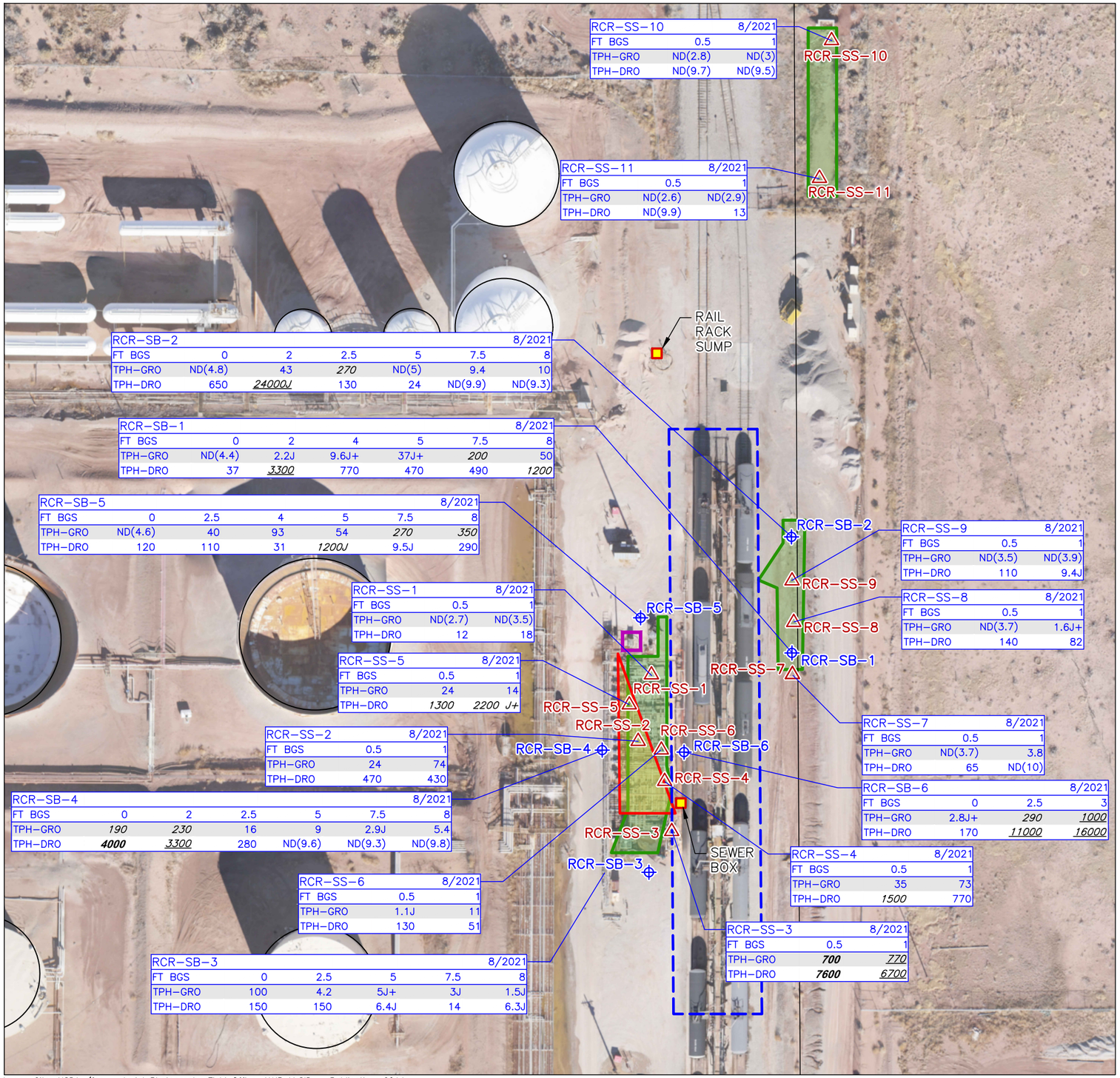


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EXPLANATION

- RCR-SB-4 — SOIL BORING AND DESIGNATION
- RCR-SS-10 — SOIL SAMPLE AND DESIGNATION
- TANK
- RAIL CAR LOADING AREA
- DIESEL RELEASE EXTENT (MARCH 13, 2019)
- GASOLINE RELEASE EXTENT (MAY 7, 2017)
- DGS 105 ADDITIVE TANK
- RAIL RACK SUMP OR SEWER BOX

N

0 70'

CONSTITUENT TABLE EXPLANATION

SAMPLE LOCATION →	RCR-SS-7	8/2021 ← SAMPLE DATE
FEET BELOW GROUND SURFACE →	FT BGS	1
	TPH-GRO	500/100
	TPH-DRO	3,000/1,000
	NMED INDUSTRIAL/CONSTRUCTION WORKER SSL (mg/kg) ↑	
	NMED RESIDENTAIL SSL (mg/kg) ↑	

NOTES:

1. BOLD TEXT INDICATES RESULTS THAT EXCEEDED THE NMED INDUSTRIAL SSL (0-1 FT BGS)
2. ITALICIZED TEXT INDICATES RESULTS THAT EXCEED THE NMED RESIDENTIAL SSL (ALL DEPTHS)
3. UNDERLINED TEXT INDICATES RESULTS THAT EXCEED THE NMED CONSTRUCTION WORKER SSL (DEEPER THAN 1 FT BGS)
4. TPH-DRO = TOTAL PETROLEUM HYDROCARBON - DIESEL RANGE ORGANICS
5. TPH-GRO = TOTAL PETROLEUM HYDROCARBON - GASOLINE RANGE ORGANICS
6. J = ESTIMATED CONCENTRATION
7. J+ = ESTIMATED CONCENTRATION, POSSIBLY BIASED HIGH
8. ND = NOT DETECTED (REPORTING LIMIT IN PARENTHESES)
9. NMED = NEW MEXICO ENVIRONMENT DEPARTMENT
10. MG/KG = MILLIGRAMS PER KILOGRAM
11. SSL = SOIL SCREENING LEVEL

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FIGURE 3

TPH-DRO AND TPH-GRO SAMPLE RESULTS
RAIL CAR LOADING AREA RELEASE

WESTERN REFINING SOUTHWEST LLC
D/B/A MARATHON GALLUP REFINERY
GALLUP, NEW MEXICO

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Tables

TABLE 1. SAMPLING LOCATIONS, DEPTHS, AND PID READINGS
RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Sample ID	Sample depth (ft bgs)	PID reading (ppm)
RCR-SB-1	0 (Surface)	0.0
	1	0.0
	2	6.0
	3	12.5
	4	107.4
	5	21.2
	6	31.8
	7	75.1
	8	31.6
RCR-SB-2	0 (Surface)	0.0
	1	16.5
	2	274.7
	3	17.3
	4	0.9
	5	0.1
	6	1.1
	7	3.6
	7.5	16.9
	8	15.4
RCR-SB-3	0 (Surface)	16.7
	1	5.7
	2	17.2
	3	9.9
	4	0.8
	5	8.2
	6	14.7
	7	33.2
	8	60.2
RCR-SB-4	0 (Surface)	98.1
	1	120.8
	2	223.0
	3	78.7
	4	8.3
	5	5.8
	6	4.0
	7	4.9
	8	6.3
RCR-SB-5	0 (Surface)	0.0
	1	0.0
	2	0.0
	3	11.0
	4	369.8
	5	115.4
	6	37.6
	7	56.3
	8	367.4
RCR-SB-6	0 (Surface)	107.7
	1	226.6
	2	877.0
	3	902.0

Notes:
ft bgs - Foot/feet below ground surface
ppm - Parts per million
PID - Photoionization detector

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Bromobenzene (mg/kg)	Bromoform (mg/kg)	Carbon Disulfide (mg/kg)	Carbon tetrachloride (mg/kg)	4-Chlorotoluene (mg/kg)	1,2-Dibromo-3-chloropropane (mg/kg)	Dibromochloromethane (mg/kg)	Dibromomethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	ND(0.44)	ND(0.044)	ND(0.044)	*ND(0.088)* *	ND(0.044)	ND(0.044)	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.39)	ND(0.039)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	ND(0.49)	ND(0.049)	ND(0.049)	*ND(0.099)* *	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	ND(0.47)	ND(0.047)	ND(0.047)	*ND(0.094)* *	ND(0.047)	ND(0.047)	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	ND(1)	ND(0.1)	ND(0.1)	*ND(0.2)* *	ND(0.1)	ND(0.1)	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	ND(0.45)	ND(0.045)	ND(0.045)	*ND(0.091)* *	ND(0.045)	ND(0.045)	ND(0.045)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	ND(0.48)	ND(0.048)	ND(0.048)	*ND(0.096)* *	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.18)	ND(1.8)	ND(0.18)	ND(0.18)	*ND(0.35)* *	ND(0.18)	ND(0.18)	ND(0.18)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.17)	ND(1.7)	ND(0.17)	ND(0.17)	*ND(0.35)* *	ND(0.17)	ND(0.17)	ND(0.17)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.038)	ND(0.38)	ND(0.038)	ND(0.038)	ND(0.075)	ND(0.038)	ND(0.038)	ND(0.038)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	ND(0.41)	ND(0.041)	ND(0.041)	ND(0.081)	ND(0.041)	ND(0.041)	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	ND(0.42)	ND(0.042)	ND(0.042)	ND(0.084)	ND(0.042)	ND(0.042)	ND(0.042)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	ND(0.34)	ND(0.034)	ND(0.034)	ND(0.067)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	ND(0.48)	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.39)	ND(0.039)	ND(0.039)	ND(0.078)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.4)	ND(0.04)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.25)	ND(2.5)	ND(0.25)	ND(0.25)	*ND(0.49)* *	ND(0.25)	ND(0.25)	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.24)	ND(2.4)	ND(0.24)	ND(0.24)	*ND(0.48)* *	ND(0.24)	ND(0.24)	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.4)	ND(0.04)	ND(0.04)	ND(0.08)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	ND(0.26)	ND(0.026)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	ND(0.26)	ND(0.026)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.4)	ND(0.04)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	ND(0.46)	ND(0.046)	ND(0.046)	*ND(0.093)* *	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	ND(1.5)	ND(0.15)	ND(0.15)	*ND(0.3)* *	ND(0.15)	ND(0.15)	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.23)	ND(2.3)	ND(0.23)	ND(0.23)	*ND(0.45)* *	ND(0.23)	ND(0.23)	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.032)	ND(0.32)	ND(0.032)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(1.6)	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(1.6)	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.049)	ND(0.49)	ND(0.049)	ND(0.049)	*ND(0.097)* *	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.066)	ND(0.66)	ND(0.066)	ND(0.066)	*ND(0.13)* *	ND(0.066)	ND(0.066)	ND(0.066)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.41)	ND(4.1)	ND(0.41)	ND(0.41)	*ND(0.82)* *	ND(0.41)	ND(0.41)	ND(0.41)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.065)	ND(0.65)	ND(0.065)	ND(0.065)	*ND(0.13)* *	ND(0.065)	ND(0.065)	ND(0.065)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	ND(0.27)	ND(0.027)	ND(0.027)	ND(0.055)	ND(0.027)	ND(0.027)	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.35)	ND(0.035)	ND(0.035)	ND(0.069)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	ND(0.28)	ND(0.028)	ND(0.028)	ND(0.055)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	ND(0.3)	ND(0.03)	ND(0.03)	ND(0.059)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	ND(0.26)	ND(0.026)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		NA	1,760	8,541	52.5	NA	1.179	67.37	288.2	12,970
NMED Residential SSL		NA	674	1,550	10.7	NA	0.0858	13.9	57.9	2,150
NMED Construction Worker SSL		NA	23,700	1,620	252	NA	5.53	340	53.9	2,500

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,3-Dichlorobenzene (mg/kg)	1,4-Dichlorobenzene (mg/kg)	Dichlorodifluoromethane (mg/kg)	cis-1,2-Dichloroethene (mg/kg)	trans-1,2-Dichloroethene (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3-Dichloropropane (mg/kg)	1,1-Dichloropropene (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.088)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.077)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.099)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.094)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.2)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.091)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.35)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.35)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.075)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.059)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.081)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.084)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.067)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.061)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.078)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.49)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.08)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.093)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.3)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.45)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.064)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.062)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.32)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.32)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.097)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.13)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.82)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.13)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.055)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.069)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.055)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.059)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.062)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
NMED Industrial SSL		NA	6,729	864.8	2,596	1,096	86.82	NA	NA
NMED Residential SSL		NA	1,290	182	156	210.19	17.8	NA	NA
NMED Construction Worker SSL		NA	45,900	161	708	206	415	NA	NA

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	trans-1,3-Dichloropropene (mg/kg)	Hexachlorobutadiene (mg/kg)	Methylene Chloride (mg/kg)	1,1,1,2-Tetrachloroethane (mg/kg)	1,2,3-Trichlorobenzene (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1,2-Trichloroethane (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.088)	ND(0.13)	ND(0.044)	ND(0.088)	ND(0.044)	ND(0.044)	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.077)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.099)	ND(0.15)	ND(0.049)	ND(0.099)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.094)	ND(0.14)	ND(0.047)	ND(0.094)	ND(0.047)	ND(0.047)	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.2)	ND(0.3)	ND(0.1)	ND(0.2)	ND(0.1)	ND(0.1)	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.091)	ND(0.14)	ND(0.045)	ND(0.091)	ND(0.045)	ND(0.045)	ND(0.045)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.096)	ND(0.14)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.35)	ND(0.53)	ND(0.18)	ND(0.35)	ND(0.18)	ND(0.18)	ND(0.18)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.35)	ND(0.52)	ND(0.17)	ND(0.35)	ND(0.17)	ND(0.17)	ND(0.17)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.075)	ND(0.11)	ND(0.038)	ND(0.075)	ND(0.038)	ND(0.038)	ND(0.038)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.059)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.081)	ND(0.12)	ND(0.041)	ND(0.081)	ND(0.041)	ND(0.041)	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.084)	ND(0.13)	ND(0.042)	ND(0.084)	ND(0.042)	ND(0.042)	ND(0.042)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.067)	ND(0.1)	ND(0.034)	ND(0.067)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.061)	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.097)	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.078)	ND(0.12)	ND(0.039)	ND(0.078)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.081)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.49)	ND(0.74)	ND(0.25)	ND(0.49)	ND(0.25)	ND(0.25)	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.48)	ND(0.73)	ND(0.24)	ND(0.48)	ND(0.24)	ND(0.24)	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.08)	ND(0.12)	ND(0.04)	ND(0.08)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.073)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.081)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.093)	ND(0.14)	ND(0.046)	ND(0.093)	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.3)	ND(0.45)	ND(0.15)	ND(0.3)	ND(0.15)	ND(0.15)	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.45)	ND(0.68)	ND(0.23)	ND(0.45)	ND(0.23)	ND(0.23)	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.064)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.062)	ND(0.094)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.32)	ND(0.49)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.32)	ND(0.48)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.097)	ND(0.15)	ND(0.049)	ND(0.097)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.13)	ND(0.2)	ND(0.066)	ND(0.13)	ND(0.066)	ND(0.066)	ND(0.066)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.82)	ND(1.2)	ND(0.41)	ND(0.82)	ND(0.41)	ND(0.41)	ND(0.41)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.13)	ND(0.2)	ND(0.065)	ND(0.13)	ND(0.065)	ND(0.065)	ND(0.065)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.055)	ND(0.082)	ND(0.027)	ND(0.055)	ND(0.027)	ND(0.027)	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.069)	ND(0.1)	ND(0.035)	ND(0.069)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.055)	ND(0.083)	ND(0.028)	ND(0.055)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.059)	ND(0.089)	ND(0.03)	ND(0.059)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.062)	ND(0.093)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		NA	52.08	5,131	137.2	NA	1,253	72,530	92.1
NMED Residential SSL		NA	68.3	766	28.1	NA	240	14,400	18.8
NMED Construction Worker SSL		NA	2,400	89,600	659	NA	8,540	13,600	4,300

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Trichloroethene (mg/kg)	Trichlorofluoromethane (mg/kg)	1,2,3-Trichloropropane (mg/kg)	Vinyl Chloride (mg/kg)	1,1,2,2-Tetrachloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	*ND(0.088)* *	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	0.014 J	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	*ND(0.077)* *	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	0.023 J	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	*ND(0.099)* *	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.072 J+	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	*ND(0.094)* *	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	0.1	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	*ND(0.2)* *	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.28	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	*ND(0.091)* *	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	0.043 J	ND(0.045)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	*ND(0.096)* *	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.18)	*ND(0.35)* *	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	1.1	ND(0.18)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.17)	*ND(0.35)* *	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	0.89	ND(0.17)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	ND(0.038)	*ND(0.075)* *	ND(0.038)	ND(0.038)	ND(0.038)	ND(0.038)	12	ND(0.038)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	*ND(0.059)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	0.0058 J	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	*ND(0.081)* *	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	*ND(0.084)* *	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	*ND(0.067)* *	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	0.15	ND(0.034)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	*ND(0.061)* *	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	0.011 J	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	0.026 J	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	*ND(0.078)* *	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	*ND(0.081)* *	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)
RCR-SB-4	08/11/21	ND(0.25)	ND(0.25)	*ND(0.49)* *	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	1.4	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	ND(0.24)	*ND(0.48)* *	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	1.9	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	*ND(0.08)* *	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	0.031 J	ND(0.04)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	*ND(0.052)* *	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	*ND(0.052)* *	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	*ND(0.073)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.02 J	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	*ND(0.081)* *	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	0.04 J	ND(0.04)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	*ND(0.093)* *	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	*ND(0.3)* *	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	0.085 J	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	ND(0.23)	*ND(0.45)* *	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	0.23	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	ND(0.032)	*ND(0.064)* *	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	1.3	ND(0.032)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	ND(0.031)	*ND(0.062)* *	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	1.2	ND(0.031)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	20	ND(0.16)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	24	ND(0.16)
RCR-SB-6	08/11/21	ND(0.049)	ND(0.049)	*ND(0.097)* *	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.51	ND(0.049)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	ND(0.066)	*ND(0.13)* *	ND(0.066)	ND(0.066)	ND(0.066)	ND(0.066)	81	ND(0.066)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	ND(0.41)	*ND(0.82)* *	ND(0.41)	ND(0.41)	ND(0.41)	ND(0.41)	28	ND(0.41)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	ND(0.065)	*ND(0.13)* *	ND(0.065)	ND(0.065)	ND(0.065)	ND(0.065)	33	ND(0.065)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	*ND(0.055)* *	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	0.013 J	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	*ND(0.069)* *	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.0097 J	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	*ND(0.055)* *	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	*ND(0.059)* *	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	*ND(0.062)* *	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	*ND(0.052)* *	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		36.46	6,031	1.211	28.41	39.4	383.3	2,255	NA	3.309
NMED Residential SSL		15.5	1,230	0.051	0.742	7.98	78.6	440	NA	0.672
NMED Construction Worker SSL		5,370	1,130	8.26	161	197	1,820	424	NA	16.3

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,2-Dichloroethane (mg/kg)	1,3,5-Trimethylbenzene (mg/kg)	1-Methylnaphthalene (mg/kg)	2,2-Dichloropropane (mg/kg)	2-Butanone (mg/kg)	2-Chlorotoluene (mg/kg)	2-Hexanone (mg/kg)	2-Methylnaphthalene (mg/kg)	4-Methyl-2-Pentanone (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.044)	ND(0.18)	ND(0.088)	ND(0.44)	ND(0.044)	ND(0.44)	ND(0.18)	ND(0.44)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.039)	0.39	ND(0.077)	ND(0.39)	ND(0.039)	ND(0.39)	ND(0.15)	ND(0.39)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.049)	1.9 J+	ND(0.099)	ND(0.49)	ND(0.049)	0.36J/ND(0.49)U	ND(0.2)	ND(0.49)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.047)	0.61	ND(0.094)	ND(0.47)	ND(0.047)	0.19J/ND(0.47)U	0.054 J	0.24 J
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.1)	0.82	ND(0.2)	ND(1)	ND(0.1)	ND(1)	ND(0.4)	ND(1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.045)	0.082 J	ND(0.091)	ND(0.45)	ND(0.045)	ND(0.45)	ND(0.18)	ND(0.45)
RCR-SB-2	08/11/21	ND(0.048)	ND(0.048)	ND(0.19)	ND(0.096)	ND(0.48)	ND(0.048)	ND(0.48)	0.054 J	ND(0.48)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	0.063 J	5.9	ND(0.35)	ND(1.8)	ND(0.18)	ND(1.8)	0.61 J	ND(1.8)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	0.053 J	5.6	ND(0.35)	ND(1.7)	ND(0.17)	ND(1.7)	0.46 J	ND(1.7)
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	0.8	3.7	ND(0.075)	ND(0.38)	ND(0.038)	ND(0.38)	1.8	ND(0.38)
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.029)	ND(0.12)	ND(0.059)	ND(0.29)	ND(0.029)	ND(0.29)	ND(0.12)	ND(0.29)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.041)	ND(0.16)	ND(0.081)	ND(0.41)	ND(0.041)	ND(0.41)	ND(0.16)	ND(0.41)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.042)	ND(0.17)	ND(0.084)	ND(0.42)	ND(0.042)	ND(0.42)	ND(0.17)	ND(0.42)
RCR-SB-3	08/11/21	ND(0.034)	ND(0.034)	0.08 J	ND(0.067)	ND(0.34)	ND(0.034)	ND(0.34)	0.074 J	ND(0.34)
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.031)	ND(0.031)	0.066 J	ND(0.061)	ND(0.31)	ND(0.031)	ND(0.31)	0.074 J	ND(0.31)
RCR-SB-3 (5 ft)	08/11/21	ND(0.048)	ND(0.048)	0.15 J	ND(0.097)	0.45J/ND(0.48)U	ND(0.048)	0.045J/ND(0.48)U	0.13 J	0.066 J
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.039)	ND(0.039)	0.091 J	ND(0.078)	ND(0.39)	ND(0.039)	ND(0.39)	0.037 J	ND(0.39)
RCR-SB-3 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.16)	ND(0.081)	ND(0.4)	ND(0.04)	ND(0.4)	ND(0.16)	ND(0.4)
RCR-SB-4	08/11/21	ND(0.25)	0.57	22	ND(0.49)	ND(2.5)	ND(0.25)	ND(2.5)	29	ND(2.5)
RCR-SB-4 (2 ft)	08/11/21	ND(0.24)	0.68	17	ND(0.48)	ND(2.4)	ND(0.24)	ND(2.4)	32	ND(2.4)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.04)	ND(0.04)	0.16 J	ND(0.08)	ND(0.4)	ND(0.04)	ND(0.4)	0.27	ND(0.4)
RCR-SB-4 (5 ft)	08/12/21	ND(0.026)	ND(0.026)	ND(0.1)	ND(0.052)	ND(0.26)	ND(0.026)	ND(0.26)	ND(0.1)	ND(0.26)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.026)	ND(0.026)	ND(0.1)	ND(0.052)	ND(0.26)	ND(0.026)	ND(0.26)	ND(0.1)	ND(0.26)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.037)	ND(0.037)	ND(0.15)	ND(0.073)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SB-4 (8 ft)	08/11/21	ND(0.04)	ND(0.04)	ND(0.16)	ND(0.081)	ND(0.4)	ND(0.04)	ND(0.4)	ND(0.16)	ND(0.4)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.046)	ND(0.19)	ND(0.093)	ND(0.46)	ND(0.046)	ND(0.46)	ND(0.19)	ND(0.46)
RCR-SB-5 (2.5 ft)	08/11/21	ND(0.15)	ND(0.15)	ND(0.59)	ND(0.3)	ND(1.5)	ND(0.15)	ND(1.5)	ND(0.59)	ND(1.5)
RCR-SB-5 (4 ft)	08/11/21	ND(0.23)	0.056 J	ND(0.91)	ND(0.45)	ND(2.3)	ND(0.23)	ND(2.3)	ND(0.91)	ND(2.3)
RCR-SB-5 (5 ft)	08/11/21	ND(0.032)	0.33	ND(0.13)	ND(0.064)	ND(0.32)	ND(0.032)	ND(0.32)	0.046 J	ND(0.32)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.031)	0.32	ND(0.12)	ND(0.062)	ND(0.31)	ND(0.031)	ND(0.31)	0.055 J	ND(0.31)
RCR-SB-5 (7.5 ft)	08/11/21	ND(0.16)	4.8	1.2	ND(0.32)	ND(1.6)	ND(0.16)	ND(1.6)	2	ND(1.6)
RCR-SB-5 (8 ft)	08/11/21	ND(0.16)	5.3	1.6	ND(0.32)	ND(1.6)	ND(0.16)	ND(1.6)	2.7	ND(1.6)
RCR-SB-6	08/11/21	ND(0.049)	0.023 J	0.13 J	ND(0.097)	ND(0.49)	ND(0.049)	0.038J/ND(0.49)U	0.21	ND(0.49)
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.066)	3.5	25	ND(0.13)	ND(0.66)	ND(0.066)	ND(0.66)	42	ND(0.66)
RCR-SB-6 (3 ft)	08/11/21	ND(0.41)	4.1	38	ND(0.82)	ND(4.1)	ND(0.41)	ND(4.1)	65	ND(4.1)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.065)	3.5	42	ND(0.13)	ND(0.65)	ND(0.065)	ND(0.65)	71	ND(0.65)
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.027)	ND(0.11)	ND(0.055)	ND(0.27)	ND(0.027)	ND(0.27)	0.032 J	ND(0.27)
RCR-SS1 (1 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.14)	ND(0.069)	ND(0.35)	ND(0.035)	ND(0.35)	ND(0.14)	ND(0.35)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.028)	ND(0.11)	ND(0.055)	ND(0.28)	ND(0.028)	ND(0.28)	ND(0.11)	ND(0.28)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.03)	ND(0.12)	ND(0.059)	ND(0.3)	ND(0.03)	ND(0.3)	ND(0.12)	ND(0.3)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.031)	ND(0.12)	ND(0.062)	ND(0.31)	ND(0.031)	ND(0.31)	ND(0.12)	ND(0.31)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.026)	ND(0.1)	ND(0.052)	ND(0.26)	ND(0.026)	ND(0.26)	ND(0.1)	ND(0.26)
NMED Industrial SSL		40.67	NA	813	NA	411,000	25,960	NA	3,368	81,650
NMED Residential SSL		8.32	NA	172	NA	37,400	1,560	NA	232	5,810
NMED Construction Worker SSL		195	NA	6,060	NA	91,700	7,080	NA	1,000	20,200

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Acetone (mg/kg)	Benzene (mg/kg)	Bromodichloromethane (mg/kg)	Bromomethane (mg/kg)	Chlorobenzene (mg/kg)	Chloroethane (mg/kg)	Chloroform (mg/kg)	Chloromethane (mg/kg)	Cis-1,3-dichloropropene (mg/kg)	Ethylbenzene (mg/kg)	Isopropylbenzene (mg/kg)
RCR-SB-1	08/11/21	ND(0.66)	ND(0.022)	ND(0.044)	ND(0.13)	ND(0.044)	ND(0.088)	ND(0.044)	ND(0.13)	ND(0.044)	ND(0.044)	ND(0.044)
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.58)	0.011 J	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.12)	ND(0.039)	0.045	ND(0.039)
RCR-SB-1 (4 ft)	08/11/21	ND(0.74)	0.023 J+	0.012 J+	ND(0.15)	ND(0.049)	ND(0.099)	0.011 J+	ND(0.15)	ND(0.049)	0.021 J+	ND(0.049)
RCR-SB-1 (5 ft)	08/11/21	ND(0.71)	0.1	0.026 J	ND(0.14)	ND(0.047)	ND(0.094)	0.028 J	ND(0.14)	ND(0.047)	0.032 J	ND(0.047)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.5)	1.1	ND(0.1)	ND(0.3)	ND(0.1)	ND(0.2)	ND(0.1)	ND(0.3)	ND(0.1)	0.11	ND(0.1)
RCR-SB-1 (8 ft)	08/11/21	ND(0.68)	0.63	ND(0.045)	ND(0.14)	ND(0.045)	ND(0.091)	ND(0.045)	ND(0.14)	ND(0.045)	0.048	ND(0.045)
RCR-SB-2	08/11/21	ND(0.72)	ND(0.024)	ND(0.048)	ND(0.14)	ND(0.048)	ND(0.096)	ND(0.048)	ND(0.14)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SB-2 (2 ft)	08/11/21	ND(2.7)	0.41	ND(0.18)	ND(0.53)	ND(0.18)	ND(0.35)	ND(0.18)	ND(0.53)	ND(0.18)	1	0.041 J
RCR-SB-2 (2 ft) Dup	08/11/21	ND(2.6)	0.32	ND(0.17)	ND(0.52)	ND(0.17)	ND(0.35)	ND(0.17)	ND(0.52)	ND(0.17)	0.84	0.033 J
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.56)	0.099	ND(0.038)	ND(0.11)	ND(0.038)	ND(0.075)	ND(0.038)	ND(0.11)	ND(0.038)	6.2	0.52
RCR-SB-2 (5 ft)	08/11/21	ND(0.44)	0.017	ND(0.029)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.088)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.61)	0.86	ND(0.041)	ND(0.12)	ND(0.041)	ND(0.081)	ND(0.041)	ND(0.12)	ND(0.041)	0.012 J	ND(0.041)
RCR-SB-2 (8 ft)	08/11/21	ND(0.63)	1.2	ND(0.042)	ND(0.13)	ND(0.042)	ND(0.084)	ND(0.042)	ND(0.13)	ND(0.042)	0.036 J	ND(0.042)
RCR-SB-3	08/11/21	ND(0.5)	0.58	ND(0.034)	ND(0.1)	ND(0.034)	ND(0.067)	ND(0.034)	ND(0.1)	ND(0.034)	0.81	0.086
RCR-SB-3 (2.5 ft)	08/11/21	ND(0.46)	0.13	ND(0.031)	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.092)	ND(0.031)	0.062	ND(0.031)
RCR-SB-3 (5 ft)	08/11/21	0.17J/ND(0.73)U	0.019 J	0.0094 J	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.15)	ND(0.048)	0.029 J	ND(0.048)
RCR-SB-3 (7.5 ft)	08/11/21	ND(0.58)	0.14	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.078)	ND(0.039)	ND(0.12)	ND(0.039)	0.065	ND(0.039)
RCR-SB-3 (8 ft)	08/11/21	ND(0.6)	0.066	ND(0.04)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.12)	ND(0.04)	0.026 J	ND(0.04)
RCR-SB-4	08/11/21	ND(3.7)	0.87	ND(0.25)	ND(0.74)	ND(0.25)	ND(0.49)	ND(0.25)	ND(0.74)	ND(0.25)	ND(0.25)	ND(0.25)
RCR-SB-4 (2 ft)	08/11/21	ND(3.6)	1.7	ND(0.24)	ND(0.73)	ND(0.24)	ND(0.48)	ND(0.24)	ND(0.73)	ND(0.24)	0.4	ND(0.24)
RCR-SB-4 (2.5 ft)	08/11/21	ND(0.6)	0.36	ND(0.04)	ND(0.12)	ND(0.04)	ND(0.08)	ND(0.04)	ND(0.12)	ND(0.04)	0.36	0.037 J
RCR-SB-4 (5 ft)	08/12/21	ND(0.39)	0.63	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.078)	ND(0.026)	0.2	0.016 J
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.39)	0.57	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.078)	ND(0.026)	0.15	0.012 J
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.55)	0.5	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.11)	ND(0.037)	0.11	ND(0.037)
RCR-SB-4 (8 ft)	08/11/21	ND(0.61)	0.43	ND(0.04)	ND(0.12)	ND(0.04)	ND(0.081)	ND(0.04)	ND(0.12)	ND(0.04)	0.16	0.012 J
RCR-SB-5	08/11/21	ND(0.7)	ND(0.023)	ND(0.046)	ND(0.14)	ND(0.046)	ND(0.093)	ND(0.046)	ND(0.14)	ND(0.046)	ND(0.046)	ND(0.046)
RCR-SB-5 (2.5 ft)	08/11/21	ND(2.2)	7.5	ND(0.15)	ND(0.45)	ND(0.15)	ND(0.3)	ND(0.15)	ND(0.45)	ND(0.15)	0.8	ND(0.15)
RCR-SB-5 (4 ft)	08/11/21	ND(3.4)	14	ND(0.23)	ND(0.68)	ND(0.23)	ND(0.45)	ND(0.23)	ND(0.68)	ND(0.23)	1.3	ND(0.23)
RCR-SB-5 (5 ft)	08/11/21	ND(0.48)	0.81 J	ND(0.032)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.096)	ND(0.032)	0.88	0.049
RCR-SB-5 (5 ft) Dup	08/11/21	ND(0.47)	0.34 J	ND(0.031)	ND(0.094)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.094)	ND(0.031)	0.64	0.035
RCR-SB-5 (7.5 ft)	08/11/21	ND(2.4)	2.3	ND(0.16)	ND(0.49)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.49)	ND(0.16)	8.7	1.2
RCR-SB-5 (8 ft)	08/11/21	ND(2.4)	1.4	ND(0.16)	ND(0.48)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.48)	ND(0.16)	8.4	1.4
RCR-SB-6	08/11/21	ND(0.73)	0.0098 J	ND(0.049)	ND(0.15)	ND(0.049)	ND(0.097)	ND(0.049)	ND(0.15)	ND(0.049)	0.1	0.017 J
RCR-SB-6 (2.5 ft)	08/11/21	ND(0.98)	0.25	ND(0.066)	ND(0.2)	ND(0.066)	ND(0.13)	ND(0.066)	ND(0.2)	ND(0.066)	11	2.5
RCR-SB-6 (3 ft)	08/11/21	ND(6.2)	4.4	ND(0.41)	ND(1.2)	ND(0.41)	ND(0.82)	ND(0.41)	ND(1.2)	ND(0.41)	34	4.7
RCR-SB-6 (3 ft) Dup	08/11/21	ND(0.98)	4.7	ND(0.065)	ND(0.2)	ND(0.065)	ND(0.13)	ND(0.065)	ND(0.2)	ND(0.065)	32	4
RCR-SS1 (0.5 ft)	08/12/21	ND(0.41)	ND(0.014)	ND(0.027)	ND(0.082)	ND(0.027)	ND(0.055)	ND(0.027)	ND(0.082)	ND(0.027)	ND(0.027)	ND(0.027)
RCR-SS1 (1 ft)	08/12/21	ND(0.52)	ND(0.017)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.069)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.41)	ND(0.014)	ND(0.028)	ND(0.083)	ND(0.028)	ND(0.055)	ND(0.028)	ND(0.083)	ND(0.028)	ND(0.028)	ND(0.028)
RCR-SS10 (1 ft)	08/19/21	ND(0.44)	ND(0.015)	ND(0.03)	ND(0.089)	ND(0.03)	ND(0.059)	ND(0.03)	ND(0.089)	ND(0.03)	ND(0.03)	ND(0.03)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.47)	ND(0.016)	ND(0.031)	ND(0.093)	ND(0.031)	ND(0.062)	ND(0.031)	ND(0.093)	ND(0.031)	ND(0.031)	ND(0.031)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.39)	ND(0.013)	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.052)	ND(0.026)	ND(0.078)	ND(0.026)	ND(0.026)	ND(0.026)
NMED Industrial SSL		960,100	87.24	30.18	94.52	2,157	89,540	28.66	200.8	NA	367.6	14,220
NMED Residential SSL		66,300	17.8	6.19	17.7	378	19,000	5.9	41.1	NA	75.1	2,360
NMED Construction Worker SSL		242,000	423	143	17.9	412	16,600	134	956	NA	1,770	2,740

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	MTBE (mg/kg)	Naphthalene (mg/kg)	n-Butyl-benzene (mg/kg)	n-Propyl-benzene (mg/kg)	p-Isopropyl-toluene (mg/kg)	sec-Butylbenzene (mg/kg)	Styrene (mg/kg)	tert-Butylbenzene (mg/kg)	Tetrachloroethene (mg/kg)	Toluene (mg/kg)	Xylenes, Total (mg/kg)
RCR-SB-1	08/11/21	ND(0.044)	ND(0.088)	ND(0.13)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	ND(0.044)	0.011 J	0.039 J
RCR-SB-1 (2.5 ft)	08/11/21	ND(0.039)	ND(0.077)	ND(0.12)	0.028 J	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.077)
RCR-SB-1 (4 ft)	08/11/21	ND(0.049)	ND(0.099)	0.021 J+	0.035 J+	0.021 J+	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.011 J+	ND(0.099)
RCR-SB-1 (5 ft)	08/11/21	ND(0.047)	ND(0.094)	0.017 J	0.021 J	0.021 J	ND(0.047)	ND(0.047)	ND(0.047)	ND(0.047)	0.057	0.052 J
RCR-SB-1 (7.5 ft)	08/11/21	ND(0.1)	ND(0.2)	ND(0.3)	0.031 J	0.053 J	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	0.52	0.18 J
RCR-SB-1 (8 ft)	08/11/21	ND(0.045)	ND(0.091)	ND(0.14)	0.0084 J	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	ND(0.045)	0.26	0.082 J
RCR-SB-2	08/11/21	ND(0.048)	ND(0.096)	ND(0.14)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.096)
RCR-SB-2 (2 ft)	08/11/21	ND(0.18)	ND(0.35)	0.054 J	0.094 J	0.049 J	ND(0.18)	ND(0.18)	ND(0.18)	ND(0.18)	0.026 J	1.3
RCR-SB-2 (2 ft) Dup	08/11/21	ND(0.17)	ND(0.35)	ND(0.52)	0.064 J	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)	1.1
RCR-SB-2 (2.5 ft)	08/11/21	ND(0.038)	1.2	0.38	2.3	0.11	0.17	ND(0.038)	ND(0.038)	ND(0.038)	0.061	8.8
RCR-SB-2 (5 ft)	08/11/21	ND(0.029)	ND(0.059)	ND(0.088)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.059)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.041)	ND(0.081)	ND(0.12)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	ND(0.041)	0.023 J	ND(0.081)
RCR-SB-2 (8 ft)	08/11/21	ND(0.042)	ND(0.084)	ND(0.13)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	ND(0.042)	0.056	0.048 J
RCR-SB-3	08/11/21	0.039	0.12	0.082 J	0.3	0.015 J	0.077	ND(0.034)	ND(0.034)	ND(0.034)	0.0051 J	0.14
RCR-SB-3 (2.5 ft)	08/11/21	0.061	0.035 J	ND(0.092)	0.021 J	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.061)
RCR-SB-3 (5 ft)	08/11/21	0.032 J	0.063 J	ND(0.15)	0.017 J	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)
RCR-SB-3 (7.5 ft)	08/11/21	0.08	0.035 J	ND(0.12)	0.022 J	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.078)
RCR-SB-3 (8 ft)	08/11/21	0.043	ND(0.081)	ND(0.12)	0.0093 J	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-4	08/11/21	0.53	4.2	ND(0.74)	ND(0.25)	0.074 J	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	ND(0.25)	0.64
RCR-SB-4 (2 ft)	08/11/21	0.5	4.7	0.085 J	0.094 J	0.11 J	ND(0.24)	ND(0.24)	ND(0.24)	ND(0.24)	0.041 J	1.8
RCR-SB-4 (2.5 ft)	08/11/21	1.3	0.1	0.039 J	0.12	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.08)
RCR-SB-4 (5 ft)	08/12/21	1.5	0.017 J	ND(0.078)	0.046	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (5 ft) Dup	08/12/21	1.4	0.015 J	ND(0.078)	0.034	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
RCR-SB-4 (7.5 ft)	08/11/21	2.3	ND(0.073)	ND(0.11)	0.016 J	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SB-4 (8 ft)	08/11/21	2.1	0.03 J	0.012 J	0.043	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.04)	ND(0.081)
RCR-SB-5	08/11/21	ND(0.046)	ND(0.093)	ND(0.14)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.093)
RCR-SB-5 (2.5 ft)	08/11/21	0.64	ND(0.3)	ND(0.45)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	0.5	2.2
RCR-SB-5 (4 ft)	08/11/21	0.79	ND(0.45)	ND(0.68)	0.047 J	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	ND(0.23)	1.3	4.8
RCR-SB-5 (5 ft)	08/11/21	0.35 J	0.08	0.034 J	0.25	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	0.066	2.4
RCR-SB-5 (5 ft) Dup	08/11/21	0.071 J	0.076	0.037 J	0.19	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	0.066	2.2
RCR-SB-5 (7.5 ft)	08/11/21	2.2	1.2	0.71	4.2	0.23	0.37	ND(0.16)	ND(0.16)	ND(0.16)	1.3	12
RCR-SB-5 (8 ft)	08/11/21	1.5	1.6	0.97	5.1	0.3	0.48	ND(0.16)	ND(0.16)	ND(0.16)	0.2	12
RCR-SB-6	08/11/21	0.087	0.17	0.038 J	0.065	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	0.11
RCR-SB-6 (2.5 ft)	08/11/21	1.2	20	6.3	9.1	2.8	3.2	ND(0.066)	0.063 J	ND(0.066)	0.018 J	12
RCR-SB-6 (3 ft)	08/11/21	11	*32*	8.9	16	2.7	4.8	ND(0.41)	0.14 J	ND(0.41)	0.24 J	18
RCR-SB-6 (3 ft) Dup	08/11/21	12	*39*	5.9	15	2.2	3.6	ND(0.065)	ND(0.065)	ND(0.065)	0.26	19
RCR-SS1 (0.5 ft)	08/12/21	ND(0.027)	ND(0.055)	ND(0.082)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	ND(0.027)	0.012 J	0.017 J
RCR-SS1 (1 ft)	08/12/21	0.054	ND(0.069)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.0051 J	ND(0.069)
RCR-SS10 (0.5 ft)	08/19/21	ND(0.028)	ND(0.055)	ND(0.083)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.028)	ND(0.055)
RCR-SS10 (1 ft)	08/19/21	ND(0.03)	ND(0.059)	ND(0.089)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.03)	ND(0.059)
RCR-SS10 (1 ft) Dup	08/19/21	ND(0.031)	ND(0.062)	ND(0.093)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.062)
RCR-SS11 (0.5 ft)	08/19/21	ND(0.026)	ND(0.052)	ND(0.078)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.026)	ND(0.052)
NMED Industrial SSL		NA	134.2	NA	NA	NA	NA	51,300	NA	628.8	61,340	4,275
NMED Residential SSL		NA	22.598	NA	NA	NA	NA	7,260	NA	337	5,230	871
NMED Construction Worker SSL		NA	1,110	NA	NA	NA	NA	10,200	NA	7,910	14,000	798

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Bromobenzene (mg/kg)	Bromoform (mg/kg)	Carbon Disulfide (mg/kg)	Carbon tetrachloride (mg/kg)	4-Chlorotoluene (mg/kg)	1,2-Dibromo-3-chloropropane (mg/kg)	Dibromochloromethane (mg/kg)	Dibromomethane (mg/kg)	1,2-Dichlorobenzene (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.057)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.033)	ND(0.33)	ND(0.033)	ND(0.033)	ND(0.066)	ND(0.033)	ND(0.033)	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.032)	ND(0.32)	ND(0.032)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.16)	ND(1.6)	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.05)	ND(0.5)	ND(0.05)	ND(0.05)	*ND(0.1)* *	ND(0.05)	ND(0.05)	ND(0.05)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.055)	ND(0.55)	ND(0.055)	ND(0.055)	*ND(0.11)* *	ND(0.055)	ND(0.055)	ND(0.055)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.054)	ND(0.54)	ND(0.054)	ND(0.054)	*ND(0.11)* *	ND(0.054)	ND(0.054)	ND(0.054)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.048)	ND(0.48)	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.051)	ND(0.51)	ND(0.051)	ND(0.051)	*ND(0.1)* *	ND(0.051)	ND(0.051)	ND(0.051)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	ND(0.34)	ND(0.034)	ND(0.034)	ND(0.068)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.074)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.29)	ND(0.029)	ND(0.029)	ND(0.058)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.37)	ND(0.037)	ND(0.037)	ND(0.075)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	ND(0.49)	ND(0.049)	ND(0.049)	*ND(0.098)* *	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.35)	ND(0.035)	ND(0.035)	ND(0.07)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	ND(0.39)	ND(0.039)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	ND(0.31)	ND(0.031)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
NMED Industrial SSL		NA	1,760	8,541	52.5	NA	1.179	67.37	288.2	12,970
NMED Residential SSL		NA	674	1,550	10.7	NA	0.0858	13.9	57.9	2,150
NMED Construction Worker SSL		NA	23,700	1,620	252	NA	5.53	340	53.9	2,500

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J - Estimated concentration
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mg/kg - Milligrams per kilogram
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NMED - New Mexico Environment Department
SSL - Soil Screening Level
U - Evaluated to be undetected at the reported concentration

Notes:
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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,3-Dichlorobenzene (mg/kg)	1,4-Dichlorobenzene (mg/kg)	Dichlorodifluoromethane (mg/kg)	cis-1,2-Dichloroethene (mg/kg)	trans-1,2-Dichloroethene (mg/kg)	1,2-Dichloropropane (mg/kg)	1,3-Dichloropropane (mg/kg)	1,1-Dichloropropene (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.057)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.066)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.064)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.32)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.1)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.11)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.11)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.059)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.097)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.1)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.068)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.074)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.058)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.075)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.098)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.07)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.077)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.061)
NMED Industrial SSL		NA	6,729	864.8	2,596	1,096	86.82	NA	NA
NMED Residential SSL		NA	1,290	182	156	210.19	17.8	NA	NA
NMED Construction Worker SSL		NA	45,900	161	708	206	415	NA	NA

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mg/kg - Milligrams per kilogram
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NMED - New Mexico Environment Department
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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	trans-1,3-Dichloropropene (mg/kg)	Hexachlorobutadiene (mg/kg)	Methylene Chloride (mg/kg)	1,1,1,2-Tetrachloroethane (mg/kg)	1,2,3-Trichlorobenzene (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)	1,1,1-Trichloroethane (mg/kg)	1,1,2-Trichloroethane (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.057)	ND(0.086)	ND(0.029)	ND(0.057)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.066)	ND(0.1)	ND(0.033)	ND(0.066)	ND(0.033)	ND(0.033)	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.064)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.032)	ND(0.032)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.32)	ND(0.47)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.16)	ND(0.16)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.1)	ND(0.15)	ND(0.05)	ND(0.1)	ND(0.05)	ND(0.05)	ND(0.05)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.11)	ND(0.16)	ND(0.055)	ND(0.11)	ND(0.055)	ND(0.055)	ND(0.055)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.11)	ND(0.16)	ND(0.054)	ND(0.11)	ND(0.054)	ND(0.054)	ND(0.054)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.059)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.097)	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.048)	ND(0.048)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.1)	ND(0.15)	ND(0.051)	ND(0.1)	ND(0.051)	ND(0.051)	ND(0.051)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.068)	ND(0.1)	ND(0.034)	ND(0.068)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.073)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.074)	ND(0.11)	ND(0.037)	ND(0.074)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.058)	ND(0.086)	ND(0.029)	ND(0.058)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.075)	ND(0.11)	ND(0.037)	ND(0.075)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.098)	ND(0.15)	ND(0.049)	ND(0.098)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.07)	ND(0.1)	ND(0.035)	ND(0.07)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.077)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.061)	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.031)	ND(0.031)
NMED Industrial SSL		NA	52.08	5,131	137.2	NA	1,253	72,530	92.1
NMED Residential SSL		NA	68.3	766	28.1	NA	240	14,400	18.8
NMED Construction Worker SSL		NA	2,400	89,600	659	NA	8,540	13,600	4,300

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WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Trichloroethene (mg/kg)	Trichlorofluoromethane (mg/kg)	1,2,3-Trichloropropane (mg/kg)	Vinyl Chloride (mg/kg)	1,1,2,2-Tetrachloroethane (mg/kg)	1,1-Dichloroethane (mg/kg)	1,1-Dichloroethene (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,2-Dibromoethane (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	*ND(0.057)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	ND(0.033)	*ND(0.066)* *	ND(0.033)	ND(0.033)	ND(0.033)	ND(0.033)	0.43	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	ND(0.032)	*ND(0.064)* *	ND(0.032)	ND(0.032)	ND(0.032)	ND(0.032)	1.9	ND(0.032)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	ND(0.16)	*ND(0.32)* *	ND(0.16)	ND(0.16)	ND(0.16)	ND(0.16)	49	ND(0.16)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	ND(0.05)	*ND(0.1)* *	ND(0.05)	ND(0.05)	ND(0.05)	ND(0.05)	41	ND(0.05)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	ND(0.055)	*ND(0.11)* *	ND(0.055)	ND(0.055)	ND(0.055)	ND(0.055)	56	ND(0.055)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	ND(0.054)	*ND(0.11)* *	ND(0.054)	ND(0.054)	ND(0.054)	ND(0.054)	3.3	ND(0.054)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	*ND(0.059)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	5.9	ND(0.029)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	ND(0.048)	*ND(0.097)* *	ND(0.048)	ND(0.048)	ND(0.048)	ND(0.048)	1.3	ND(0.048)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	ND(0.051)	*ND(0.1)* *	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	0.54	ND(0.051)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	*ND(0.068)* *	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	0.011 J	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	*ND(0.073)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	*ND(0.074)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.013 J	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	ND(0.029)	*ND(0.058)* *	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	0.16	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	*ND(0.075)* *	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.013 J	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	*ND(0.098)* *	ND(0.049)	0.019 J	ND(0.049)	ND(0.049)	0.0071 J	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.035)	*ND(0.07)* *	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.027 J	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	*ND(0.077)* *	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	0.023 J	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	*ND(0.061)* *	ND(0.031)	0.017 J	ND(0.031)	ND(0.031)	0.019 J	ND(0.031)
NMED Industrial SSL		36.46	6,031	1.211	28.41	39.4	383.3	2,255	NA	3.309
NMED Residential SSL		15.5	1,230	0.051	0.742	7.98	78.6	440	NA	0.672
NMED Construction Worker SSL		5,370	1,130	8.26	161	197	1,820	424	NA	16.3

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U - Evaluated to be undetected at the reported concentration

Notes:
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4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,2-Dichloroethane (mg/kg)	1,3,5-Trimethylbenzene (mg/kg)	1-Methylnaphthalene (mg/kg)	2,2-Dichloropropane (mg/kg)	2-Butanone (mg/kg)	2-Chlorotoluene (mg/kg)	2-Hexanone (mg/kg)	2-Methylnaphthalene (mg/kg)	4-Methyl-2-Pentanone (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.029)	ND(0.11)	ND(0.057)	ND(0.29)	ND(0.029)	ND(0.29)	ND(0.11)	ND(0.29)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.033)	0.47	0.62	ND(0.066)	ND(0.33)	ND(0.033)	ND(0.33)	0.52	ND(0.33)
RCR-SS2 (1 ft)	08/12/21	ND(0.032)	1.4	2.9	ND(0.064)	ND(0.32)	ND(0.032)	ND(0.32)	3.2	ND(0.32)
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	18	7.4	ND(0.32)	ND(1.6)	ND(0.16)	ND(1.6)	13	ND(1.6)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.05)	14	5.9	ND(0.1)	ND(0.5)	ND(0.05)	ND(0.5)	11	ND(0.5)
RCR-SS3 (1 ft)	08/12/21	ND(0.055)	14	7	ND(0.11)	ND(0.55)	ND(0.055)	ND(0.55)	13	ND(0.55)
RCR-SS4 (0.5 ft)	08/12/21	ND(0.054)	0.22	3.8	ND(0.11)	ND(0.54)	ND(0.054)	ND(0.54)	3.9	ND(0.54)
RCR-SS4 (1 ft)	08/12/21	ND(0.029)	0.38	6.8	ND(0.059)	ND(0.29)	ND(0.029)	ND(0.29)	9.1	ND(0.29)
RCR-SS5 (0.5 ft)	08/12/21	ND(0.048)	0.3	1.6	ND(0.097)	ND(0.48)	ND(0.048)	ND(0.48)	0.65	ND(0.48)
RCR-SS5 (1 ft)	08/12/21	ND(0.051)	0.23	1.3	ND(0.1)	ND(0.51)	ND(0.051)	ND(0.51)	0.33	ND(0.51)
RCR-SS6 (0.5 ft)	08/12/21	ND(0.034)	ND(0.034)	ND(0.14)	ND(0.068)	ND(0.34)	ND(0.034)	ND(0.34)	ND(0.14)	ND(0.34)
RCR-SS6 (1 ft)	08/12/21	ND(0.037)	ND(0.037)	0.24	ND(0.073)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.15)	ND(0.074)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	0.051	ND(0.12)	ND(0.058)	ND(0.29)	ND(0.029)	ND(0.29)	0.044 J	ND(0.29)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.037)	ND(0.15)	ND(0.075)	ND(0.37)	ND(0.037)	ND(0.37)	ND(0.15)	ND(0.37)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.049)	ND(0.2)	ND(0.098)	ND(0.49)	ND(0.049)	0.036J/ND(0.49)U	ND(0.2)	ND(0.49)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	0.0085 J	ND(0.14)	ND(0.07)	ND(0.35)	ND(0.035)	ND(0.35)	ND(0.14)	ND(0.35)
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.039)	ND(0.15)	ND(0.077)	ND(0.39)	ND(0.039)	ND(0.39)	ND(0.15)	ND(0.39)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.031)	ND(0.12)	ND(0.061)	0.13J/ND(0.31)U	ND(0.031)	0.031J/ND(0.31)U	ND(0.12)	ND(0.31)
NMED Industrial SSL		40.67	NA	813	NA	411,000	25,960	NA	3,368	81,650
NMED Residential SSL		8.32	NA	172	NA	37,400	1,560	NA	232	5,810
NMED Construction Worker SSL		195	NA	6,060	NA	91,700	7,080	NA	1,000	20,200

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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Acetone (mg/kg)	Benzene (mg/kg)	Bromodichloromethane (mg/kg)	Bromomethane (mg/kg)	Chlorobenzene (mg/kg)	Chloroethane (mg/kg)	Chloroform (mg/kg)	Chloromethane (mg/kg)	Cis-1,3-dichloropropene (mg/kg)	Ethylbenzene (mg/kg)	Isopropylbenzene (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.43)	ND(0.014)	ND(0.029)	ND(0.086)	ND(0.029)	ND(0.057)	ND(0.029)	ND(0.086)	ND(0.029)	ND(0.029)	ND(0.029)
RCR-SS2 (0.5 ft)	08/12/21	ND(0.5)	0.013 J	ND(0.033)	ND(0.1)	ND(0.033)	ND(0.066)	ND(0.033)	ND(0.1)	ND(0.033)	0.18	ND(0.033)
RCR-SS2 (1 ft)	08/12/21	ND(0.48)	0.011 J	ND(0.032)	ND(0.096)	ND(0.032)	ND(0.064)	ND(0.032)	ND(0.096)	ND(0.032)	0.36	0.11
RCR-SS3 (0.5 ft)	08/12/21	ND(2.4)	4	ND(0.16)	ND(0.47)	ND(0.16)	ND(0.32)	ND(0.16)	ND(0.47)	ND(0.16)	16	1.5
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(0.75)	4	ND(0.05)	ND(0.15)	ND(0.05)	ND(0.1)	ND(0.05)	ND(0.15)	ND(0.05)	13	1.4
RCR-SS3 (1 ft)	08/12/21	ND(0.82)	6.3	ND(0.055)	ND(0.16)	ND(0.055)	ND(0.11)	ND(0.055)	ND(0.16)	ND(0.055)	20	1.8
RCR-SS4 (0.5 ft)	08/12/21	ND(0.8)	0.15	ND(0.054)	ND(0.16)	ND(0.054)	ND(0.11)	ND(0.054)	ND(0.16)	ND(0.054)	0.95	0.17
RCR-SS4 (1 ft)	08/12/21	ND(0.44)	0.17	ND(0.029)	ND(0.088)	ND(0.029)	ND(0.059)	ND(0.029)	ND(0.088)	ND(0.029)	1	0.3
RCR-SS5 (0.5 ft)	08/12/21	ND(0.73)	0.066	ND(0.048)	ND(0.15)	ND(0.048)	ND(0.097)	ND(0.048)	ND(0.15)	ND(0.048)	0.33	0.043 J
RCR-SS5 (1 ft)	08/12/21	ND(0.76)	0.029	ND(0.051)	ND(0.15)	ND(0.051)	ND(0.1)	ND(0.051)	ND(0.15)	ND(0.051)	0.12	0.014 J
RCR-SS6 (0.5 ft)	08/12/21	ND(0.51)	ND(0.017)	ND(0.034)	ND(0.1)	ND(0.034)	ND(0.068)	ND(0.034)	ND(0.1)	ND(0.034)	ND(0.034)	ND(0.034)
RCR-SS6 (1 ft)	08/12/21	ND(0.55)	ND(0.018)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.073)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.55)	ND(0.018)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.074)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS7 (1 ft)	08/12/21	ND(0.43)	ND(0.014)	ND(0.029)	ND(0.086)	ND(0.029)	ND(0.058)	ND(0.029)	ND(0.086)	ND(0.029)	0.026 J	ND(0.029)
RCR-SS8 (0.5 ft)	08/12/21	ND(0.56)	ND(0.019)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.075)	ND(0.037)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)
RCR-SS8 (1 ft)	08/12/21	ND(0.74)	ND(0.025)	ND(0.049)	ND(0.15)	ND(0.049)	ND(0.098)	ND(0.049)	ND(0.15)	ND(0.049)	ND(0.049)	ND(0.049)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.52)	ND(0.017)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.07)	ND(0.035)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)
RCR-SS9 (1 ft)	08/12/21	ND(0.58)	ND(0.019)	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.077)	ND(0.039)	ND(0.12)	ND(0.039)	ND(0.039)	ND(0.039)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.46)	ND(0.015)	0.0053 J	ND(0.092)	ND(0.031)	ND(0.061)	ND(0.031)	ND(0.092)	ND(0.031)	ND(0.031)	ND(0.031)
NMED Industrial SSL		960,100	87.24	30.18	94.52	2,157	89,540	28.66	200.8	NA	367.6	14,220
NMED Residential SSL		66,300	17.8	6.19	17.7	378	19,000	5.9	41.1	NA	75.1	2,360
NMED Construction Worker SSL		242,000	423	143	17.9	412	16,600	134	956	NA	1,770	2,740

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SSL - Soil Screening Level
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TABLE 2. VOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	MTBE (mg/kg)	Naphthalene (mg/kg)	n-Butyl-benzene (mg/kg)	n-Propyl-benzene (mg/kg)	p-Isopropyl-toluene (mg/kg)	sec-Butylbenzene (mg/kg)	Styrene (mg/kg)	tert-Butylbenzene (mg/kg)	Tetrachloroethene (mg/kg)	Toluene (mg/kg)	Xylenes, Total (mg/kg)
RCR-SS11 (1 ft)	08/19/21	ND(0.029)	ND(0.057)	ND(0.086)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.057)
RCR-SS2 (0.5 ft)	08/12/21	0.039	ND(0.066)	0.089 J	0.084	0.13	0.057	ND(0.033)	ND(0.033)	ND(0.033)	0.039	0.13
RCR-SS2 (1 ft)	08/12/21	0.098	0.64	0.47	0.41	0.41	0.32	ND(0.032)	0.01 J	ND(0.032)	0.0079 J	0.048 J
RCR-SS3 (0.5 ft)	08/12/21	ND(0.16)	10	1.9	5.8	0.49	0.64	ND(0.16)	ND(0.16)	ND(0.16)	18	70
RCR-SS3 (0.5 ft) Dup	08/12/21	0.052	10	1.5	4.9	0.37	0.55	ND(0.05)	ND(0.05)	ND(0.05)	17	59
RCR-SS3 (1 ft)	08/12/21	0.1	13	1.9	6.6	0.48	0.67	0.022 J	ND(0.055)	ND(0.055)	23	85
RCR-SS4 (0.5 ft)	08/12/21	0.86	1.3	0.66	0.61	0.089	0.25	ND(0.054)	ND(0.054)	ND(0.054)	0.16	2.8
RCR-SS4 (1 ft)	08/12/21	1.4	2.4	1.5	1.3	0.18	0.56	ND(0.029)	ND(0.029)	ND(0.029)	0.27	1.9
RCR-SS5 (0.5 ft)	08/12/21	0.38	0.25	0.14 J	0.18	0.039 J	0.049	ND(0.048)	ND(0.048)	ND(0.048)	0.21	1.3
RCR-SS5 (1 ft)	08/12/21	0.47	ND(0.1)	0.077 J	0.069	0.035 J	ND(0.051)	ND(0.051)	ND(0.051)	ND(0.051)	0.089	0.56
RCR-SS6 (0.5 ft)	08/12/21	0.072	ND(0.068)	ND(0.1)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.034)	ND(0.068)
RCR-SS6 (1 ft)	08/12/21	0.076	ND(0.073)	0.037 J	0.0078 J	0.055	0.044	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.073)
RCR-SS7 (0.5 ft)	08/12/21	ND(0.037)	ND(0.074)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.074)
RCR-SS7 (1 ft)	08/12/21	ND(0.029)	0.022 J	0.011 J	0.018 J	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	ND(0.029)	0.0069 J	0.13
RCR-SS8 (0.5 ft)	08/12/21	ND(0.037)	ND(0.075)	ND(0.11)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	ND(0.037)	0.0058 J	ND(0.075)
RCR-SS8 (1 ft)	08/12/21	ND(0.049)	ND(0.098)	ND(0.15)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.049)	ND(0.098)
RCR-SS9 (0.5 ft)	08/12/21	ND(0.035)	ND(0.07)	ND(0.1)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	ND(0.035)	0.035 J
RCR-SS9 (1 ft)	08/12/21	ND(0.039)	ND(0.077)	ND(0.12)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	ND(0.039)	0.0085 J	ND(0.077)
RCR-SS9 (1 ft) Dup	08/12/21	ND(0.031)	ND(0.061)	ND(0.092)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	ND(0.031)	0.0043 J	ND(0.061)
NMED Industrial SSL		NA	134.2	NA	NA	NA	NA	51,300	NA	628.8	61,340	4,275
NMED Residential SSL		NA	22.598	NA	NA	NA	NA	7,260	NA	337	5,230	871
NMED Construction Worker SSL		NA	1,110	NA	NA	NA	NA	10,200	NA	7,910	14,000	798

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mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
U - Evaluated to be undetected at the reported concentration

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Aniline (mg/kg)	Azobenzene (mg/kg)	Benzoic Acid (mg/kg)	Bis(2chloroethoxy)methane (mg/kg)	Bis(2-chloroethyl)ether (mg/kg)	Bis(2-chloroisopropyl)ether (mg/kg)	4-Bromophenylphenylether (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	ND(49)	ND(250)	ND(49)	*ND(49)* *	ND(49)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(4)	ND(9.9)	ND(4)	*ND(4)* *	ND(4)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(9.7)	ND(9.7)	ND(24)	ND(9.7)	*ND(9.7)* *	ND(9.7)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(200)	ND(200)	ND(490)	ND(200)	*ND(200)* *	ND(200)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(500)	ND(500)	ND(1200)	ND(500)	*ND(500)* *	ND(500)	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(9.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2) *	ND(2)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-3	08/11/21	ND(1.9)	ND(1.9)	ND(9.5)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(9.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2) *	ND(2)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.49)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-4	08/11/21	ND(49)	ND(49)	ND(250)	ND(49)	***ND(49)*** *	ND(49)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	ND(48)	ND(240)	ND(48)	*ND(48)* *	ND(48)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2)	ND(10)	ND(2)	ND(2) *	ND(2)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.19)	ND(0.48)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.19)	ND(0.94)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-5	08/11/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(9.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2) *	ND(2)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	ND(9.8)	ND(25)	ND(9.8)	*ND(9.8)* *	ND(9.8)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2) *	ND(2)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2)	ND(4.9)	ND(2)	ND(2) *	ND(2)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	ND(39)	ND(200)	ND(39)	*ND(39)* *	ND(39)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(100)	ND(100)	ND(250)	ND(100)	*ND(100)* *	ND(100)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	ND(200)	ND(500)	ND(200)	*ND(200)* *	ND(200)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(9.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(9.7)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(9.6)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
NMED Industrial SSL		NA	NA	NA	NA	15.67	NA	NA
NMED Residential SSL		NA	NA	NA	NA	3.11	NA	NA
NMED Construction Worker SSL		NA	NA	NA	NA	1.95	NA	NA

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	4-Chloro-3-Methylphenol (mg/kg)	4-Chloroaniline (mg/kg)	2-Chloronaphthalene (mg/kg)	2-Chlorophenol (mg/kg)	4-Chlorophenylphenylether (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,3-Dichlorobenzene (mg/kg)
RCR-SB-1	08/11/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(120)	ND(120)	ND(61)	ND(49)	ND(49)	ND(49)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(4.9)	ND(4.9)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(9.9)	ND(9.9)	ND(5)	ND(4)	ND(4)	ND(4)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(4.7)	ND(4.7)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(24)	ND(24)	ND(12)	ND(9.7)	ND(9.7)	ND(9.7)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(490)	ND(490)	ND(250)	ND(200)	ND(200)	ND(200)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(1200)	ND(1200)	ND(620)	*ND(500)* *	ND(500)	ND(500)	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(4.9)	ND(4.9)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(4.9)	ND(4.9)	ND(2.4)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.47)	ND(0.47)	ND(0.24)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.5)	ND(0.5)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-3	08/11/21	ND(4.7)	ND(4.7)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.49)	ND(0.49)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-4	08/11/21	ND(120)	ND(120)	ND(62)	ND(49)	ND(49)	ND(49)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(120)	ND(120)	ND(61)	ND(48)	ND(48)	ND(48)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.48)	ND(0.48)	ND(0.24)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.47)	ND(0.47)	ND(0.24)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.5)	ND(0.5)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.47)	ND(0.47)	ND(0.23)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)
RCR-SB-5	08/11/21	ND(4.9)	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(4.7)	ND(4.7)	ND(2.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(4.9)	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(25)	ND(25)	ND(12)	ND(9.8)	ND(9.8)	ND(9.8)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(4.9)	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.5)	ND(0.5)	ND(0.25)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(99)	ND(99)	ND(49)	ND(39)	ND(39)	ND(39)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(250)	ND(250)	ND(120)	ND(100)	ND(100)	ND(100)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(500)	ND(500)	ND(250)	ND(200)	ND(200)	ND(200)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(4.6)	ND(4.6)	ND(2.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(4.9)	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(4.8)	ND(4.8)	ND(2.4)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
NMED Industrial SSL		NA	NA	103,800	6,489	NA	12,970	NA
NMED Residential SSL		NA	NA	6,260	391	NA	2,150	NA
NMED Construction Worker SSL		NA	NA	28,300	1,770	NA	2,500	NA

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,4-Dichlorobenzene (mg/kg)	3,3-Dichlorobenzidine (mg/kg)	2,4-Dichlorophenol (mg/kg)	Dimethyl phthalate (mg/kg)	2-Methyl-4,6-dinitrophenol (mg/kg)	2,4-Dinitrophenol (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	*ND(61)* *	ND(98)	ND(49)	ND(98)	ND(120)	*ND(120)* *	*ND(120)* *
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(5)	ND(7.9)	ND(4)	ND(7.9)	ND(9.9)	ND(9.9)	*ND(9.9)* *
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.7)	ND(4.7)	*ND(4.7)* *
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *
RCR-SB-2	08/11/21	ND(9.7)	*ND(12)* *	ND(19)	ND(9.7)	ND(19)	ND(24)	*ND(24)* *	***ND(24)*** *
RCR-SB-2 (2 ft)	08/11/21	ND(200)	*ND(250)* *	*ND(390)* *	ND(200)	ND(390)	*ND(490)* *	*ND(490) UJ* *	*ND(490)* *
RCR-SB-2 (2 ft) Dup	08/11/21	ND(500)	*ND(620)* *	*ND(990)* *	ND(500)	ND(990)	*ND(1200)* *	*ND(1200)* *	*ND(1200)* *
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2.4)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.24)	ND(0.38)	ND(0.19)	ND(0.38)	ND(0.47)	ND(0.47)	ND(0.47)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.25)	ND(0.4)	ND(0.2)	ND(0.4)	ND(0.5)	ND(0.5)	ND(0.5)
RCR-SB-3	08/11/21	ND(1.9)	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.7)	ND(4.7)	*ND(4.7)* *
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.25)	ND(0.39)	ND(0.2)	ND(0.39)	ND(0.49)	ND(0.49)	ND(0.49)
RCR-SB-4	08/11/21	ND(49)	***ND(62)*** *	ND(99)	ND(49)	ND(99)	ND(120)	***ND(120)*** *	***ND(120)*** *
RCR-SB-4 (2 ft)	08/11/21	ND(48)	*ND(61)* *	ND(97)	ND(48)	ND(97)	ND(120)	*ND(120)* *	*ND(120)* *
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.24)	ND(0.39)	ND(0.19)	ND(0.39)	ND(0.48)	ND(0.48) UJ	ND(0.48)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.24)	ND(0.38)	ND(0.19)	ND(0.38)	ND(0.47)	ND(0.47)	ND(0.47)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.25)	ND(0.4)	ND(0.2)	ND(0.4)	ND(0.5)	ND(0.5) UJ	ND(0.5)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.23)	ND(0.37)	ND(0.19)	ND(0.37)	ND(0.47)	ND(0.47) UJ	ND(0.47)
RCR-SB-5	08/11/21	ND(2)	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9) UJ	*ND(4.9)* *
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(2.3)	ND(3.7)	ND(1.9)	ND(3.7)	ND(4.7)	ND(4.7) UJ	*ND(4.7)* *
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9) UJ	*ND(4.9)* *
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	*ND(12)* *	ND(20)	ND(9.8)	ND(20)	ND(25)	*ND(25) UJ* *	*ND(25)* *
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9) UJ	*ND(4.9)* *
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.25)	ND(0.4)	ND(0.2)	ND(0.4)	ND(0.5)	ND(0.5) UJ	ND(0.5)
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	*ND(49)* *	ND(79)	ND(39)	ND(79)	ND(99)	*ND(99) UJ* *	*ND(99)* *
RCR-SB-6 (3 ft)	08/11/21	ND(100)	*ND(120)* *	*ND(200)* *	ND(100)	ND(200)	*ND(250)* *	*ND(250) UJ* *	*ND(250)* *
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	*ND(250)* *	*ND(400)* *	ND(200)	ND(400)	*ND(500)* *	*ND(500)* *	*ND(500)* *
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(2.3)	ND(3.7)	ND(1.9)	ND(3.7)	ND(4.6)	ND(4.6) UJ	*ND(4.6)* *
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8) UJ	*ND(4.8)* *
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(2.4)	ND(3.8)	ND(1.9)	ND(3.8)	ND(4.8)	ND(4.8)	*ND(4.8)* *
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(2.4)	ND(3.9)	ND(1.9)	ND(3.9)	ND(4.8)	ND(4.8)	*ND(4.8)* *
NMED Industrial SSL		6,729	57.01	2,749	916,000	NA	1,833	82.27	17.15
NMED Residential SSL		1,290	11.8	185	61,600	NA	123	17.1	3.56
NMED Construction Worker SSL		45,900	410	807	279,000	NA	538	600	165

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Hexachlorobenzene (mg/kg)	Hexachlorobutadiene (mg/kg)	Hexachlorocyclopentadiene (mg/kg)	Hexachloroethane (mg/kg)	Isophorone (mg/kg)	2-Nitroaniline (mg/kg)	3-Nitroaniline (mg/kg)	4-Nitroaniline (mg/kg)	Nitrobenzene (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)
RCR-SB-1 (2.5 ft)	08/11/21	*ND(49)* *	ND(49)	*ND(49)* *	ND(49)	ND(98)	ND(49)	ND(49)	ND(98)	*ND(98)* *
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)
RCR-SB-1 (5 ft)	08/11/21	*ND(4)* *	ND(4)	*ND(4)* *	ND(4)	ND(7.9)	ND(4)	ND(4)	ND(7.9)	ND(7.9)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)
RCR-SB-2	08/11/21	*ND(9.7)* *	ND(9.7)	*ND(9.7)* *	ND(9.7)	ND(19)	ND(9.7)	ND(9.7)	ND(19)	ND(19)
RCR-SB-2 (2 ft)	08/11/21	*ND(200)* *	*ND(200)* *	*ND(200)* *	*ND(200)* *	ND(390)	ND(200)	ND(200)	ND(390)	*ND(390)* *
RCR-SB-2 (2 ft) Dup	08/11/21	*ND(500)* *	*ND(500)* *	*ND(500)* *	*ND(500)* *	ND(990)	ND(500)	ND(500)	ND(990)	*ND(990)* *
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)
RCR-SB-3	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.39)	ND(0.2)	ND(0.2)	ND(0.39)	ND(0.39)
RCR-SB-4	08/11/21	***ND(49)*** *	ND(49)	*ND(49)* *	ND(49)	ND(99)	ND(49)	ND(49)	ND(99)	*ND(99)* *
RCR-SB-4 (2 ft)	08/11/21	*ND(48)* *	ND(48)	*ND(48)* *	ND(48)	ND(97)	ND(48)	ND(48)	ND(97)	*ND(97)* *
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.39)	ND(0.19)	ND(0.19)	ND(0.39)	ND(0.39)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.37)
RCR-SB-5	08/11/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.7)	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
RCR-SB-5 (5 ft)	08/11/21	*ND(9.8)* *	ND(9.8)	*ND(9.8)* *	ND(9.8)	ND(20)	ND(9.8)	ND(9.8)	ND(20)	ND(20)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)
RCR-SB-6 (2.5 ft)	08/11/21	*ND(39)* *	ND(39)	*ND(39)* *	ND(39)	ND(79)	ND(39)	ND(39)	ND(79)	*ND(79)* *
RCR-SB-6 (3 ft)	08/11/21	*ND(100)* *	*ND(100)* *	*ND(100)* *	ND(100)	ND(200)	ND(100)	ND(100)	ND(200)	*ND(200)* *
RCR-SB-6 (3 ft) Dup	08/11/21	*ND(200)* *	*ND(200)* *	*ND(200)* *	*ND(200)* *	ND(400)	ND(200)	ND(200)	ND(400)	*ND(400)* *
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.7)	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)
NMED Industrial SSL		16.03	52.08	5,492	641.4	27,010	NA	NA	NA	293.3
NMED Residential SSL		3.33	68.3	2.3	133	5,610	NA	NA	NA	60.4
NMED Construction Worker SSL		117	2,400	867	4,670	198,000	NA	NA	NA	1,350

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	2-Nitrophenol (mg/kg)	4-Nitrophenol (mg/kg)	N-Nitrosodimethylamine (mg/kg)	N-Nitroso-di-n-propylamine (mg/kg)	N-Nitroso-diphenylamine (mg/kg)	Pentachlorophenol (mg/kg)	Pyridine (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(2.4)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	ND(61)	*ND(49)* *	ND(49)	ND(49)	*ND(98)* *	ND(98)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(2.4)	*ND(1.9)* *	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(5)	*ND(4)* *	ND(4)	ND(4)	ND(7.9)	ND(7.9)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(2.4)	*ND(1.9)* *	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(2.4)	*ND(1.9)* *	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(9.7)	ND(12)	***ND(9.7)*** *	ND(9.7)	ND(9.7)	*ND(19)* *	ND(19)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(200)	ND(250)	*ND(200)* *	ND(200)	ND(200)	*ND(390)* *	ND(390)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(500)	ND(620)	*ND(500)* *	ND(500)	ND(500)	*ND(990)* *	ND(990)	*ND(500)* *
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(2.4)	*ND(1.9)* *	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2.4)	*ND(2)* *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.24)	*ND(0.19)* *	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.25)	*ND(0.2)* *	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-3	08/11/21	ND(1.9)	ND(2.4)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(2.4)	*ND(1.9)* *	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2.5)	*ND(2)* *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(2.4)	*ND(1.9)* *	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.25)	*ND(0.2)* *	ND(0.2)	ND(0.2)	ND(0.39)	ND(0.39)	ND(0.2)
RCR-SB-4	08/11/21	ND(49)	ND(62)	***ND(49)*** *	ND(49)	ND(49)	***ND(99)*** *	ND(99)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	ND(61)	*ND(48)* *	ND(48)	ND(48)	*ND(97)* *	ND(97)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2.5)	*ND(2)* *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.24)	*ND(0.19)* *	ND(0.19)	ND(0.19)	ND(0.39)	ND(0.39)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.24)	*ND(0.19)* *	ND(0.19)	ND(0.19)	ND(0.38)	ND(0.38)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.25)	*ND(0.2)* *	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.23)	*ND(0.19)* *	ND(0.19)	ND(0.19)	ND(0.37)	ND(0.37)	ND(0.19)
RCR-SB-5	08/11/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(2.3)	*ND(1.9)* *	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2.5)	*ND(2)* *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	ND(12)	*ND(9.8)* *	ND(9.8)	ND(9.8)	*ND(20)* *	ND(20)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2.5)	*ND(2)* *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2.5)	*ND(2)* *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.25)	*ND(0.2)* *	ND(0.2)	ND(0.2)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	ND(49)	*ND(39)* *	ND(39)	ND(39)	*ND(79)* *	ND(79)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(100)	ND(120)	*ND(100)* *	ND(100)	ND(100)	*ND(200)* *	ND(200)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	ND(250)	*ND(200)* *	ND(200)	ND(200)	*ND(400)* *	ND(400)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(2.3)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(2.4)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(2.4)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(2.4)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(2.4)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(2.4)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.9)	ND(3.9)	ND(1.9)
NMED Industrial SSL		NA	NA	0.503	NA	5,236	44.51	NA	1,253
NMED Residential SSL		NA	NA	0.0234	NA	1,090	9.85	NA	240
NMED Construction Worker SSL		NA	NA	3.66	NA	37,900	346	NA	8,540

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	2,4,5-Trichlorophenol (mg/kg)	2,4,6-Trichlorophenol (mg/kg)	2,4-Dimethylphenol (mg/kg)	2-Methylphenol (mg/kg)	3,4- Methylphenol (mg/kg)	Benzyl Alcohol (mg/kg)	Bis(2-ethylhexyl)phthalate (mg/kg)	Benzylbutylphthalate (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	ND(49)	ND(74)	ND(98)	ND(49)	ND(49)	ND(120)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(4)	ND(6)	ND(7.9)	ND(4)	ND(4)	ND(9.9)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(2.8)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SB-2	08/11/21	ND(9.7)	ND(9.7)	ND(15)	ND(19)	ND(9.7)	ND(9.7)	ND(24)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(200)	ND(200)	ND(300)	ND(390)	ND(200)	ND(200)	*ND(490)* *	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(500)	*ND(500)* *	ND(750)	ND(990)	ND(500)	ND(500)	*ND(1200)* *	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.28)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.3)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)
RCR-SB-3	08/11/21	ND(1.9)	ND(1.9)	ND(2.8)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	3.3 J	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.29)	ND(0.39)	ND(0.2)	ND(0.2)	0.86	ND(0.2)
RCR-SB-4	08/11/21	ND(49)	ND(49)	ND(74)	ND(99)	ND(49)	ND(49)	ND(120)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	ND(48)	ND(73)	ND(97)	ND(48)	ND(48)	ND(120)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.19)	ND(0.29)	ND(0.39)	ND(0.19)	ND(0.19)	ND(0.48)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.19)	ND(0.28)	ND(0.38)	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.3)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.28)	ND(0.37)	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.19)
RCR-SB-5	08/11/21	ND(2)	ND(2)	ND(3)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(2.8)	ND(3.7)	ND(1.9)	ND(1.9)	ND(4.7)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2)	ND(3)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	ND(9.8)	ND(15)	ND(20)	ND(9.8)	ND(9.8)	ND(25)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.3)	ND(0.4)	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.2)
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	ND(39)	ND(59)	ND(79)	ND(39)	ND(39)	ND(99)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(100)	ND(100)	ND(150)	ND(200)	ND(100)	ND(100)	ND(250)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	ND(200)	ND(300)	ND(400)	ND(200)	ND(200)	*ND(500)* *	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(2.8)	ND(3.7)	ND(1.9)	ND(1.9)	ND(4.6)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.8)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(2.9)	ND(3.9)	ND(1.9)	ND(1.9)	ND(4.8)	ND(1.9)
NMED Industrial SSL		91,630	2,332.25	18,330	NA	NA	NA	1,832	NA
NMED Residential SSL		6,160	484	1,230	NA	NA	NA	380	NA
NMED Construction Worker SSL		26,900	17,000	5,380	NA	NA	NA	13,400	NA

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Carbazole (mg/kg)	Dibenzofuran (mg/kg)	Diethylphthalate (mg/kg)	Di-n-butylphthalate (mg/kg)	Di-n-octylphthalate (mg/kg)	Phenol (mg/kg)
RCR-SB-1	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (2.5 ft)	08/11/21	ND(49)	ND(49)	ND(120)	ND(98)	ND(98)	ND(49)
RCR-SB-1 (4 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-1 (5 ft)	08/11/21	ND(4)	ND(4)	ND(9.9)	ND(7.9)	ND(7.9)	ND(4)
RCR-SB-1 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.7)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-1 (8 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2	08/11/21	ND(9.7)	ND(9.7)	ND(24)	ND(19)	ND(19)	ND(9.7)
RCR-SB-2 (2 ft)	08/11/21	ND(200)	ND(200)	ND(490)	ND(390)	ND(390)	ND(200)
RCR-SB-2 (2 ft) Dup	08/11/21	ND(500)	ND(500)	ND(1200)	ND(990)	ND(990)	ND(500)
RCR-SB-2 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.9)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-2 (5 ft)	08/11/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-2 (7.5 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.47)	ND(0.38)	ND(0.38)	ND(0.19)
RCR-SB-2 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.4)	ND(0.4)	0.14 J
RCR-SB-3	08/11/21	ND(1.9)	ND(1.9)	ND(4.7)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SB-3 (5 ft)	08/11/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SB-3 (7.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SB-3 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.49)	ND(0.39)	ND(0.39)	ND(0.2)
RCR-SB-4	08/11/21	ND(49)	ND(49)	ND(120)	ND(99)	ND(99)	ND(49)
RCR-SB-4 (2 ft)	08/11/21	ND(48)	ND(48)	ND(120)	ND(97)	ND(97)	ND(48)
RCR-SB-4 (2.5 ft)	08/11/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SB-4 (5 ft)	08/12/21	ND(0.19)	ND(0.19)	ND(0.48)	ND(0.39)	ND(0.39)	ND(0.19)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(0.19)	ND(0.19)	ND(0.47)	0.32 J	ND(0.38)	ND(0.19)
RCR-SB-4 (7.5 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.4)	ND(0.4)	ND(0.2)
RCR-SB-4 (8 ft)	08/11/21	ND(0.19)	ND(0.19)	ND(0.47)	0.27 J	ND(0.37)	ND(0.19)
RCR-SB-5	08/11/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (2.5 ft)	08/11/21	ND(1.9)	ND(1.9)	ND(4.7)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (5 ft)	08/11/21	ND(9.8)	ND(9.8)	ND(25)	ND(20)	ND(20)	ND(9.8)
RCR-SB-5 (5 ft) Dup	08/11/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(0.2)	ND(0.2)	ND(0.5)	ND(0.4)	ND(0.4)	0.091 J
RCR-SB-6 (2.5 ft)	08/11/21	ND(39)	ND(39)	ND(99)	ND(79)	ND(79)	ND(39)
RCR-SB-6 (3 ft)	08/11/21	ND(100)	ND(100)	ND(250)	ND(200)	ND(200)	ND(100)
RCR-SB-6 (3 ft) Dup	08/11/21	ND(200)	ND(200)	ND(500)	ND(400)	ND(400)	ND(200)
RCR-SS1 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(4.6)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS1 (1 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS10 (0.5 ft)	08/19/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS10 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
RCR-SS10 (1 ft) Dup	08/19/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (0.5 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.8)	ND(3.8)	ND(1.9)
RCR-SS11 (1 ft)	08/19/21	ND(1.9)	ND(1.9)	ND(4.8)	ND(3.9)	ND(3.9)	ND(1.9)
NMED Industrial SSL		NA	NA	733,000	91,630	NA	274,900
NMED Residential SSL		NA	NA	49,300	6,160	NA	18,500
NMED Construction Worker SSL		NA	NA	215,000	26,900	NA	77,400

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Aniline (mg/kg)	Azobenzene (mg/kg)	Benzoic Acid (mg/kg)	Bis(2chloroethoxy)methane (mg/kg)	Bis(2-chloroethyl)ether (mg/kg)	Bis(2-chloroisopropyl)ether (mg/kg)	4-Bromophenylphenylether (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	ND(39)	ND(190)	ND(39)	***ND(39)*** *	ND(39)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	ND(200)	ND(990)	ND(200)	***ND(200)*** *	ND(200)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(39)	ND(39)	ND(190)	ND(39)	***ND(39)*** *	ND(39)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	ND(10)	ND(25)	ND(10)	*ND(10)* *	ND(10)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(3.9)	ND(9.7)	ND(3.9)	*ND(3.9)* *	ND(3.9)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	ND(20)	ND(49)	ND(20)	***ND(20)*** *	ND(20)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(20)	ND(20)	ND(50)	ND(20)	***ND(20)*** *	ND(20)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2)	ND(9.9)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2)	ND(10)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(9.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2)	ND(10)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2)	ND(9.8)	ND(2)	ND(2)	ND(2)	ND(2)
NMED Industrial SSL		NA	NA	NA	NA	15.67	NA	NA
NMED Residential SSL		NA	NA	NA	NA	3.11	NA	NA
NMED Construction Worker SSL		NA	NA	NA	NA	1.95	NA	NA

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	4-Chloro-3-Methylphenol (mg/kg)	4-Chloroaniline (mg/kg)	2-Chloronaphthalene (mg/kg)	2-Chlorophenol (mg/kg)	4-Chlorophenylphenylether (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,3-Dichlorobenzene (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(96)	ND(96)	ND(48)	ND(39)	ND(39)	ND(39)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(500)	ND(500)	ND(250)	ND(200)	ND(200)	ND(200)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(96)	ND(96)	ND(48)	ND(39)	ND(39)	ND(39)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(25)	ND(25)	ND(12)	ND(10)	ND(10)	ND(10)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(9.7)	ND(9.7)	ND(4.8)	ND(3.9)	ND(3.9)	ND(3.9)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(49)	ND(49)	ND(25)	ND(20)	ND(20)	ND(20)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(50)	ND(50)	ND(25)	ND(20)	ND(20)	ND(20)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(4.9)	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(4.9)	ND(4.9)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(4.9)	ND(4.9)	ND(2.4)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(4.6)	ND(4.6)	ND(2.3)	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(5)	ND(5)	ND(2.5)	ND(2)	ND(2)	ND(2)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(4.9)	ND(4.9)	ND(2.4)	ND(2)	ND(2)	ND(2)	ND(2)
NMED Industrial SSL		NA	NA	103,800	6,489	NA	12,970	NA
NMED Residential SSL		NA	NA	6,260	391	NA	2,150	NA
NMED Construction Worker SSL		NA	NA	28,300	1,770	NA	2,500	NA

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1,4-Dichlorobenzene (mg/kg)	3,3-Dichlorobenzidine (mg/kg)	2,4-Dichlorophenol (mg/kg)	Dimethyl phthalate (mg/kg)	2-Methyl-4,6-dinitrophenol (mg/kg)	2,4-Dinitrophenol (mg/kg)	2,4-Dinitrotoluene (mg/kg)	2,6-Dinitrotoluene (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5) UJ	*ND(5)* *
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5) UJ	*ND(5)* *
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	*ND(48)* *	ND(77)	ND(39)	ND(77)	ND(96)	***ND(96) UJ** *	***ND(96)** *
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	***ND(250)** *	*ND(400)* *	ND(200)	ND(400)	*ND(500)* *	***ND(500)** *	***ND(500)** *
RCR-SS3 (1 ft)	08/12/21	ND(39)	*ND(48)* *	ND(77)	ND(39)	ND(77)	ND(96)	***ND(96) UJ** *	***ND(96)** *
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	*ND(12)* *	ND(20)	ND(10)	ND(20)	ND(25)	*ND(25) UJ* *	***ND(25)** *
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(4.8)	ND(7.7)	ND(3.9)	ND(7.7)	ND(9.7)	ND(9.7) UJ	*ND(9.7)* *
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	*ND(25)* *	ND(39)	ND(20)	ND(39)	ND(49)	*ND(49)* *	***ND(49)** *
RCR-SS5 (1 ft)	08/12/21	ND(20)	*ND(25)* *	ND(40)	ND(20)	ND(40)	ND(50)	*ND(50)* *	***ND(50)** *
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2.5)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(4.9)	ND(4.9)	*ND(4.9)* *
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2.4)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(2.3)	ND(3.7)	ND(1.9)	ND(3.7)	ND(4.6)	ND(4.6)	*ND(4.6)* *
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2.5)	ND(4)	ND(2)	ND(4)	ND(5)	ND(5)	*ND(5)* *
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2.4)	ND(3.9)	ND(2)	ND(3.9)	ND(4.9)	ND(4.9)	*ND(4.9)* *
NMED Industrial SSL		6,729	57.01	2,749	916,000	NA	1,833	82.27	17.15
NMED Residential SSL		1,290	11.8	185	61,600	NA	123	17.1	3.56
NMED Construction Worker SSL		45,900	410	807	279,000	NA	538	600	165

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Hexachlorobenzene (mg/kg)	Hexachlorobutadiene (mg/kg)	Hexachlorocyclopentadiene (mg/kg)	Hexachloroethane (mg/kg)	Isophorone (mg/kg)	2-Nitroaniline (mg/kg)	3-Nitroaniline (mg/kg)	4-Nitroaniline (mg/kg)	Nitrobenzene (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SS3 (0.5 ft)	08/12/21	***ND(39)*** *	ND(39)	*ND(39)* *	ND(39)	ND(77)	ND(39)	ND(39)	ND(77)	*ND(77)* *
RCR-SS3 (0.5 ft) Dup	08/12/21	***ND(200)*** *	***ND(200)*** *	*ND(200)* *	*ND(200)* *	ND(400)	ND(200)	ND(200)	ND(400)	***ND(400)*** *
RCR-SS3 (1 ft)	08/12/21	***ND(39)*** *	ND(39)	*ND(39)* *	ND(39)	ND(77)	ND(39)	ND(39)	ND(77)	*ND(77)* *
RCR-SS4 (0.5 ft)	08/12/21	*ND(10)* *	ND(10)	*ND(10)* *	ND(10)	ND(20)	ND(10)	ND(10)	ND(20)	ND(20)
RCR-SS4 (1 ft)	08/12/21	*ND(3.9)* *	ND(3.9)	*ND(3.9)* *	ND(3.9)	ND(7.7)	ND(3.9)	ND(3.9)	ND(7.7)	ND(7.7)
RCR-SS5 (0.5 ft)	08/12/21	***ND(20)*** *	ND(20)	*ND(20)* *	ND(20)	ND(39)	ND(20)	ND(20)	ND(39)	ND(39)
RCR-SS5 (1 ft)	08/12/21	***ND(20)*** *	ND(20)	*ND(20)* *	ND(20)	ND(40)	ND(20)	ND(20)	ND(40)	ND(40)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(1.9)	ND(1.9)	ND(3.7)	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(4)	ND(2)	ND(2)	ND(4)	ND(4)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2)	ND(2)	ND(2)	ND(3.9)	ND(2)	ND(2)	ND(3.9)	ND(3.9)
NMED Industrial SSL		16.03	52.08	5,492	641.4	27,010	NA	NA	NA	293.3
NMED Residential SSL		3.33	68.3	2.3	133	5,610	NA	NA	NA	60.4
NMED Construction Worker SSL		117	2,400	867	4,670	198,000	NA	NA	NA	1,350

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	2-Nitrophenol (mg/kg)	4-Nitrophenol (mg/kg)	N-Nitrosodimethylamine (mg/kg)	N-Nitroso-di-n-propylamine (mg/kg)	N-Nitroso-diphenylamine (mg/kg)	Pentachlorophenol (mg/kg)	Pyridine (mg/kg)	1,2,4-Trichlorobenzene (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	ND(48)	***ND(39)*** *	ND(39)	ND(39)	***ND(77)*** *	ND(77)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	ND(250)	***ND(200)*** *	ND(200)	ND(200)	***ND(400)*** *	ND(400)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(39)	ND(48)	***ND(39)*** *	ND(39)	ND(39)	***ND(77)*** *	ND(77)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	ND(12)	***ND(10)*** *	ND(10)	ND(10)	*ND(20)* *	ND(20)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(4.8)	***ND(3.9)*** *	ND(3.9)	ND(3.9)	ND(7.7)	ND(7.7)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	ND(25)	***ND(20)*** *	ND(20)	ND(20)	*ND(39)* *	ND(39)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(20)	ND(25)	***ND(20)*** *	ND(20)	ND(20)	*ND(40)* *	ND(40)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2.4)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(2.3)	***ND(1.9)*** *	ND(1.9)	ND(1.9)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2.5)	***ND(2)*** *	ND(2)	ND(2)	ND(4)	ND(4)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2.4)	***ND(2)*** *	ND(2)	ND(2)	ND(3.9)	ND(3.9)	ND(2)
NMED Industrial SSL		NA	NA	0.503	NA	5,236	44.51	NA	1,253
NMED Residential SSL		NA	NA	0.0234	NA	1,090	9.85	NA	240
NMED Construction Worker SSL		NA	NA	3.66	NA	37,900	346	NA	8,540

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WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	2,4,5-Trichlorophenol (mg/kg)	2,4,6-Trichlorophenol (mg/kg)	2,4-Dimethylphenol (mg/kg)	2-Methylphenol (mg/kg)	3,4- Methylphenol (mg/kg)	Benzyl Alcohol (mg/kg)	Bis(2-ethylhexyl)phthalate (mg/kg)	Benzylbutylphthalate (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	ND(39)	ND(58)	ND(77)	ND(39)	ND(39)	ND(96)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	ND(200)	ND(300)	ND(400)	ND(200)	ND(200)	*ND(500)* *	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(39)	ND(39)	ND(58)	ND(77)	ND(39)	ND(39)	ND(96)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	ND(10)	ND(15)	ND(20)	ND(10)	ND(10)	ND(25)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(3.9)	ND(5.8)	ND(7.7)	ND(3.9)	ND(3.9)	ND(9.7)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	ND(20)	ND(30)	ND(39)	ND(20)	ND(20)	ND(49)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(20)	ND(20)	ND(30)	ND(40)	ND(20)	ND(20)	ND(50)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(2.8)	ND(3.7)	ND(1.9)	ND(1.9)	ND(4.6)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2)	ND(3)	ND(4)	ND(2)	ND(2)	ND(5)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2)	ND(2.9)	ND(3.9)	ND(2)	ND(2)	ND(4.9)	ND(2)
NMED Industrial SSL		91,630	2,332.25	18,330	NA	NA	NA	1,832	NA
NMED Residential SSL		6,160	484	1,230	NA	NA	NA	380	NA
NMED Construction Worker SSL		26,900	17,000	5,380	NA	NA	NA	13,400	NA

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TABLE 3a. SEMIVOLATILE ORGANIC COMPOUNDS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Carbazole (mg/kg)	Dibenzofuran (mg/kg)	Diethylphthalate (mg/kg)	Di-n-butylphthalate (mg/kg)	Di-n-octylphthalate (mg/kg)	Phenol (mg/kg)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	ND(39)	ND(39)	ND(96)	ND(77)	ND(77)	ND(39)
RCR-SS3 (0.5 ft) Dup	08/12/21	ND(200)	ND(200)	ND(500)	ND(400)	ND(400)	ND(200)
RCR-SS3 (1 ft)	08/12/21	ND(39)	ND(39)	ND(96)	ND(77)	ND(77)	ND(39)
RCR-SS4 (0.5 ft)	08/12/21	ND(10)	ND(10)	ND(25)	ND(20)	ND(20)	ND(10)
RCR-SS4 (1 ft)	08/12/21	ND(3.9)	ND(3.9)	ND(9.7)	ND(7.7)	ND(7.7)	ND(3.9)
RCR-SS5 (0.5 ft)	08/12/21	ND(20)	ND(20)	ND(49)	ND(39)	ND(39)	ND(20)
RCR-SS5 (1 ft)	08/12/21	ND(20)	ND(20)	ND(50)	ND(40)	ND(40)	ND(20)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS6 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS7 (1 ft)	08/12/21	ND(2)	ND(2)	ND(4.9)	ND(4)	ND(4)	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
RCR-SS8 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS9 (0.5 ft)	08/12/21	ND(1.9)	ND(1.9)	ND(4.6)	ND(3.7)	ND(3.7)	ND(1.9)
RCR-SS9 (1 ft)	08/12/21	ND(2)	ND(2)	ND(5)	ND(4)	ND(4)	ND(2)
RCR-SS9 (1 ft) Dup	08/12/21	ND(2)	ND(2)	ND(4.9)	ND(3.9)	ND(3.9)	ND(2)
NMED Industrial SSL		NA	NA	733,000	91,630	NA	274,900
NMED Residential SSL		NA	NA	49,300	6,160	NA	18,500
NMED Construction Worker SSL		NA	NA	215,000	26,900	NA	77,400

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(g,h,i)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)
RCR-SB-1 (0 ft)	8/11/2021	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	0.0467	ND(0.0231)	ND(0.0231)
RCR-SB-1 (2.5 ft)	8/11/2021	0.0768	ND (0.0252)	0.0361	0.0394	0.0678	0.0896	0.156	0.298	0.286	0.0463	0.911
RCR-SB-1 (4 ft)	8/11/2021	1.59	ND (0.0121)	0.124	0.0452	0.0264	0.0444	ND (0.0121)	0.0154	ND (0.0121)	ND (0.0121)	0.0855
RCR-SB-1 (5 ft)	8/11/2021	0.111	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)	ND (0.0122)
RCR-SB-1 (7.5 ft)	8/11/2021	0.386	0.0614	0.0497	0.045	0.0345	0.0182	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	0.05
RCR-SB-1 (8 ft)	8/11/2021	0.089	0.0355	0.0139	0.0128	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)	ND (0.0125)
RCR-SB-2 (0 ft)	8/11/2021	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	0.0575	ND (0.0224)	ND (0.0224)
RCR-SB-2 (2 ft)	8/11/2021	4.24 J	ND (0.263)	1.73 J	0.342 J	0.417 J	0.689 J	ND (0.263) UJ	0.357 J	ND (0.263) UJ	ND (0.263)	1.69 J
RCR-SB-2 (2 ft) Dup	8/11/2021	12.9 J	ND (0.131)	5.29 J	1.08 J	1.41 J	*1.56 J*	0.612 J	0.811 J	0.444 J	ND (0.131)	5.23 J
RCR-SB-2 (2.5 ft)	8/11/2021	0.268	0.0545	0.0364	ND (0.0253)	ND (0.0253)	0.0489	ND (0.0253)	ND (0.0253)	0.0459	ND (0.0253)	ND (0.0253)
RCR-SB-2 (5 ft)	8/11/2021	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)
RCR-SB-2 (7.5 ft)	8/11/2021	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)
RCR-SB-2 (8 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-3 (0 ft)	8/11/2021	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	ND (0.0222)	0.0395	0.24	ND (0.0222)	0.0275
RCR-SB-3 (2.5 ft)	8/11/2021	0.0301	0.0287	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	0.026	ND (0.0227)	ND (0.0227)
RCR-SB-3 (5 ft)	8/11/2021	0.0872	0.0545	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)	ND (0.0116)
RCR-SB-3 (7.5 ft)	8/11/2021	0.0458	0.0138	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)
RCR-SB-3 (8 ft)	8/11/2021	0.0216	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)
RCR-SB-4 (0 ft)	8/11/2021	8.95	11.3	0.438	0.16	ND (0.106)	0.281	ND (0.106)	0.123	ND (0.106)	ND (0.106)	0.373
RCR-SB-4 (2 ft)	8/11/2021	1.9	2.88	0.124	0.0362	ND (0.0225)	ND (0.0225)	ND (0.0225)	ND (0.0225)	ND (0.0225)	ND (0.0225)	0.0276
RCR-SB-4 (2.5 ft)	8/11/2021	0.112	0.173	ND (0.0232)	ND (0.0232)	ND (0.0232)	0.0317	ND (0.0232)	ND (0.0232)	ND (0.0232)	ND (0.0232)	0.0318
RCR-SB-4 (5 ft)	8/12/2021	ND (0.0126) UJ	ND (0.0126) UJ	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-4 (5 ft) Dup	8/12/2021	0.332 J	0.534 J	0.0195	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)
RCR-SB-4 (7.5 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-4 (8 ft)	8/11/2021	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)
RCR-SB-5 (0 ft)	8/11/2021	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	0.0268	ND (0.0213)	ND (0.0213)
RCR-SB-5 (2.5 ft)	8/11/2021	ND (0.0219)	0.0243	ND (0.0219)	ND (0.0219)	ND (0.0219)	0.0756	0.33	0.217	0.215	ND (0.0219)	0.278
RCR-SB-5 (4 ft)	8/11/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0441
RCR-SB-5 (5 ft)	8/11/2021	0.0222 J	0.0406 J	ND (0.0118) UJ	ND (0.0118)	ND (0.0118)	0.0959 J	0.0908 J	0.109 J	0.0766 J	0.016 J	0.302 J
RCR-SB-5 (5 ft) Dup	8/11/2021	0.149 J	0.106 J	0.0652 J	ND (0.0212)	0.0348	0.543 J	*1.95 J*	0.704 J	0.519 J	0.148 J	2.67 J
RCR-SB-5 (7.5 ft)	8/11/2021	0.237	0.407	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	0.0171
RCR-SB-5 (8 ft)	8/11/2021	0.736	1.33	0.0211	0.0123	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)
RCR-SB-6 (0 ft)	8/11/2021	3.62	5.5	0.253	0.0811	0.068	ND (0.0111)	ND (0.0111)	ND (0.0111)	ND (0.0111)	ND (0.0111)	0.0465
RCR-SB-6 (2.5 ft)	8/11/2021	30.7	52.2	0.358	0.312	ND (0.241)	0.918	0.578	0.463	ND (0.241)	ND (0.241)	2.38
RCR-SB-6 (3 ft)	8/11/2021	43.1 J	68 J	0.945 J	0.538 J	0.34 J	0.96 J	0.549 J	0.314 J	ND (0.247) UJ	ND (0.247) UJ	2.12
RCR-SB-6 (3 ft) Dup	8/11/2021	84.2 J	146 J	4.28 J	2.34 J	19.9 J	*2.88 J*	*2.64 J*	1.21 J	1.02 J	1.12 J	3.12
RCR-SS1 (0.5 ft)	8/12/2021	0.104	0.153	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)
RCR-SS1 (1 ft)	8/12/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SS10 (0.5 ft)	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS10 (1 ft)	8/19/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)
RCR-SS10 (1 ft) Dup	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS11 (0.5 ft)	8/19/2021	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	0.0171	0.074	ND (0.0129)	0.0392
NMED Industrial SSL		813	3,368	50,520	NA	252,600	32.3	23.58	32.3	NA	322.9	3,229
NMED Residential SSL		172	232	3,480	NA	17,400	1.53	1.12	1.53	NA	15.3	153
NMED Construction Worker SSL		6,060	1,000	15,100	NA	75,300	240	173	240	NA	2,310	23,100

TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Dibenzo(a,h)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3-cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
RCR-SB-1 (0 ft)	8/11/2021	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)	ND(0.0231)
RCR-SB-1 (2.5 ft)	8/11/2021	0.0803	0.15	ND (0.0252)	0.0776	ND (0.0252)	0.0337	0.788
RCR-SB-1 (4 ft)	8/11/2021	ND (0.0121)	0.0213	0.271	ND (0.0121)	0.0425	0.514	0.111
RCR-SB-1 (5 ft)	8/11/2021	ND (0.0122)	ND (0.0122)	0.0342	ND (0.0122)	0.019	0.102	ND (0.0122)
RCR-SB-1 (7.5 ft)	8/11/2021	ND (0.0124)	ND (0.0124)	0.279	ND (0.0124)	0.0318	0.537	0.0765
RCR-SB-1 (8 ft)	8/11/2021	ND (0.0125)	ND (0.0125)	0.0636	ND (0.0125)	ND (0.0125)	0.162	0.019
RCR-SB-2 (0 ft)	8/11/2021	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	ND (0.0224)	0.0281
RCR-SB-2 (2 ft)	8/11/2021	*ND (0.263)**	0.458 J	2.07 J	ND (0.263)	0.441 J	3.41 J	2.05 J
RCR-SB-2 (2 ft) Dup	8/11/2021	*0.259*	1.39 J	6.78 J	0.189	1.14 J	8.75 J	6.49 J
RCR-SB-2 (2.5 ft)	8/11/2021	ND (0.0253)	ND (0.0253)	0.0618	ND (0.0253)	0.0545	0.177	0.0546
RCR-SB-2 (5 ft)	8/11/2021	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)
RCR-SB-2 (7.5 ft)	8/11/2021	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)	ND (0.0127)
RCR-SB-2 (8 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-3 (0 ft)	8/11/2021	0.0419	ND (0.0222)	ND (0.0222)	0.0604	0.0321	ND (0.0222)	ND (0.0222)
RCR-SB-3 (2.5 ft)	8/11/2021	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)	ND (0.0227)
RCR-SB-3 (5 ft)	8/11/2021	ND (0.0116)	ND (0.0116)	0.0149	ND (0.0116)	0.017	0.033	0.0153
RCR-SB-3 (7.5 ft)	8/11/2021	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	0.0126	ND (0.0115)
RCR-SB-3 (8 ft)	8/11/2021	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	ND (0.0115)	0.012	ND (0.0115)
RCR-SB-4 (0 ft)	8/11/2021	ND (0.106)	ND (0.106)	0.717	ND (0.106)	1.98	1.47	0.367
RCR-SB-4 (2 ft)	8/11/2021	ND (0.0225)	ND (0.0225)	0.191	ND (0.0225)	0.261	0.31	0.0493
RCR-SB-4 (2.5 ft)	8/11/2021	ND (0.0232)	ND (0.0232)	ND (0.0232)	ND (0.0232)	0.0346	0.0768	0.0539
RCR-SB-4 (5 ft)	8/12/2021	ND (0.0126)	ND (0.0126)	ND (0.0126) UJ	ND (0.0126)	ND (0.0126) UJ	ND (0.0126) UJ	ND (0.0126) UJ
RCR-SB-4 (5 ft) Dup	8/12/2021	ND (0.0127)	ND (0.0127)	0.0353 J	ND (0.0127)	0.2 J	0.106 J	0.0266 J
RCR-SB-4 (7.5 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SB-4 (8 ft)	8/11/2021	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)
RCR-SB-5 (0 ft)	8/11/2021	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)	ND (0.0213)
RCR-SB-5 (2.5 ft)	8/11/2021	0.0775	ND (0.0219)	ND (0.0219)	0.0727	0.0652	ND (0.0219)	0.0895
RCR-SB-5 (4 ft)	8/11/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0345
RCR-SB-5 (5 ft)	8/11/2021	0.0432 J	0.0128 J	ND (0.0118) UJ	0.0302 J	0.0337 J	ND (0.0118) UJ	0.362 J
RCR-SB-5 (5 ft) Dup	8/11/2021	*0.271 J*	0.111 J	0.0732 J	0.225 J	0.137 J	0.148 J	2.73 J
RCR-SB-5 (7.5 ft)	8/11/2021	ND (0.0126)	ND (0.0126)	0.0154	ND (0.0126)	0.234	0.0352	ND (0.0126)
RCR-SB-5 (8 ft)	8/11/2021	ND (0.0123)	ND (0.0123)	0.0794	ND (0.0123)	0.561	0.162	0.0286
RCR-SB-6 (0 ft)	8/11/2021	ND (0.0111)	0.028	0.464	ND (0.0111)	0.871	0.634	0.0963
RCR-SB-6 (2.5 ft)	8/11/2021	*ND (0.241) **	0.462	1.84	ND (0.241)	17.5	4.66	2.44
RCR-SB-6 (3 ft)	8/11/2021	*ND (0.247) UJ **	0.464 J	3.54 J	ND (0.247) UJ	*26.6 J*	8.2 J	2.47 J
RCR-SB-6 (3 ft) Dup	8/11/2021	*0.518 J*	1.29 J	0.411 J	0.34 J	*50.6 J*	16.7 J	4.98 J
RCR-SS1 (0.5 ft)	8/12/2021	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	0.0821	0.0273	0.018
RCR-SS1 (1 ft)	8/12/2021	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)	ND (0.0126)
RCR-SS10 (0.5 ft)	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS10 (1 ft)	8/19/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)
RCR-SS10 (1 ft) Dup	8/19/2021	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)	ND (0.0133)
RCR-SS11 (0.5 ft)	8/19/2021	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	ND (0.0129)	0.022
NMED Industrial SSL		3.23	33,680	33,680	32.3	134.2	25,260	25,260
NMED Residential SSL		0.153	2,320	2,320	1.53	22.598	1,740	1,740
NMED Construction Worker SSL		24	10,000	10,000	240	633	7,530	7,530

TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Acenaphthene (mg/kg)	Acenaphthylene (mg/kg)	Anthracene (mg/kg)	Benzo(a)anthracene (mg/kg)	Benzo(a)pyrene (mg/kg)	Benzo(b)fluoranthene (mg/kg)	Benzo(g,h,i)perylene (mg/kg)	Benzo(k)fluoranthene (mg/kg)	Chrysene (mg/kg)
RCR-SS11 (1 ft)	8/19/2021	ND (0.0128)	0.0145	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0177	0.0164	0.022	0.174	ND (0.0128)	0.0557
RCR-SS2 (0.5 ft)	8/12/2021	0.604	0.421	0.0189	0.0188	ND (0.0128)	0.0341	0.0176	0.0254	0.0221	ND (0.0128)	0.102
RCR-SS2 (1 ft)	8/12/2021	6.56	6.91	ND (0.0263)	0.0983	ND (0.0263)	ND (0.0263)	ND (0.0263)	ND (0.0263)	ND (0.0263)	ND (0.0263)	0.088
RCR-SS3 (0.5 ft)	8/12/2021	11.2 J	16.5 J	0.548	ND (0.498)	ND (0.498)	ND (0.498)	ND (0.498)	ND (0.498)	ND (0.498) UJ	ND (0.498)	0.731 J
RCR-SS3 (0.5 ft) Dup	8/12/2021	0.143 J	0.221 J	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.026)	0.0787 J	ND (0.026)	0.102 J
RCR-SS3 (1 ft)	8/12/2021	18.2	32	0.613	0.28	ND (0.265)	ND (0.265)	ND (0.265)	ND (0.265)	ND (0.265)	ND (0.265)	0.574
RCR-SS4 (0.5 ft)	8/12/2021	2.9	2.88	0.225	0.104	0.0568	0.111	0.0346	0.0667	0.0781	ND (0.0142)	0.413
RCR-SS4 (1 ft)	8/12/2021	2.29	3.47	0.139	0.049	0.0493	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	ND (0.0123)	0.0176
RCR-SS5 (0.5 ft)	8/12/2021	0.475	0.129	0.0502	0.0275	0.034	0.182	0.0841	0.0639	0.0759	0.0121	0.427
RCR-SS5 (1 ft)	8/12/2021	1.01	0.553	0.138	0.0426	0.0894	0.395	0.307	0.212	0.231	0.037	1.21
RCR-SS6 (0.5 ft)	8/12/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0198
RCR-SS6 (1 ft)	8/12/2021	0.0446	0.0192	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)	ND (0.0124)
RCR-SS7 (0.5 ft)	8/12/2021	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	ND (0.0117)	0.102	ND (0.0117)	0.0203
RCR-SS7 (1 ft)	8/12/2021	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	0.0287	ND (0.0119)	ND (0.0119)
RCR-SS8 (0.5 ft)	8/12/2021	ND (0.0138)	ND (0.0138)	ND (0.0138)	ND (0.0138)	0.0181	ND (0.0138)	ND (0.0138)	0.0169	0.115	ND (0.0138)	0.0269
RCR-SS8 (1 ft)	8/12/2021	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	ND (0.0121)	0.062	ND (0.0121)	0.0145
RCR-SS9 (0.5 ft)	8/12/2021	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	0.073	ND (0.011)	0.0199
RCR-SS9 (1 ft)	8/12/2021	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231)	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ	0.0523 J	ND (0.0231) UJ	ND (0.0231) UJ
RCR-SS9 (1 ft) Dup	8/12/2021	13.3 J	21 J	1.51 J	0.779 J	4.08 J	0.163 J	0.298 J	0.164 J	0.126 J	0.152 J	1.07 J
NMED Industrial SSL		813	3,368	50,520	NA	252,600	32.3	23.58	32.3	NA	322.9	3,229
NMED Residential SSL		172	232	3,480	NA	17,400	1.53	1.12	1.53	NA	15.3	153
NMED Construction Worker SSL		6,060	1,000	15,100	NA	75,300	240	173	240	NA	2,310	23,100

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 3b. SEMIVOLATILE ORGANIC COMPOUNDS - SIM ANALYSIS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Dibenzo(a,h)anthracene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Indeno(1,2,3-cd)pyrene (mg/kg)	Naphthalene (mg/kg)	Phenanthrene (mg/kg)	Pyrene (mg/kg)
RCR-SS11 (1 ft)	8/19/2021	0.025	0.015	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0183	0.0338
RCR-SS2 (0.5 ft)	8/12/2021	ND (0.0128)	0.0147	0.0728	ND (0.0128)	0.217	0.0284	0.177
RCR-SS2 (1 ft)	8/12/2021	ND (0.0263)	ND (0.0263)	0.475	ND (0.0263)	1.27	0.384	0.127
RCR-SS3 (0.5 ft)	8/12/2021	*ND (0.498)**	ND (0.498)	2 J	ND (0.498)	5.5 J	3.71 J	1.61 J
RCR-SS3 (0.5 ft) Dup	8/12/2021	ND (0.026)	ND (0.026)	ND (0.026) UJ	ND (0.026)	0.0767 J	0.0605 J	0.053 J
RCR-SS3 (1 ft)	8/12/2021	*ND (0.265)**	ND (0.265)	1.84	ND (0.265)	15	3.74	1.31
RCR-SS4 (0.5 ft)	8/12/2021	0.0343	0.0577	0.638	0.023	0.915	0.802	0.341
RCR-SS4 (1 ft)	8/12/2021	ND (0.0123)	0.0175	0.28	ND (0.0123)	0.61	0.514	0.0564
RCR-SS5 (0.5 ft)	8/12/2021	0.026	0.101	0.143	0.0229	0.0461	0.136	0.87
RCR-SS5 (1 ft)	8/12/2021	0.086	0.17	0.25	0.0683	0.178	0.479	1.68
RCR-SS6 (0.5 ft)	8/12/2021	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	ND (0.0128)	0.0305
RCR-SS6 (1 ft)	8/12/2021	ND (0.0124)	ND (0.0124)	0.0285	ND (0.0124)	0.0181	0.0547	ND (0.0124)
RCR-SS7 (0.5 ft)	8/12/2021	ND (0.0117)	ND (0.0117)	ND (0.0117)	0.0167	ND (0.0117)	ND (0.0117)	0.016
RCR-SS7 (1 ft)	8/12/2021	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)	ND (0.0119)
RCR-SS8 (0.5 ft)	8/12/2021	0.0144	ND (0.0138)	ND (0.0138)	0.0266	ND (0.0138)	ND (0.0138)	0.0229
RCR-SS8 (1 ft)	8/12/2021	0.0145	ND (0.0121)	ND (0.0121)	0.0217	ND (0.0121)	ND (0.0121)	0.0124
RCR-SS9 (0.5 ft)	8/12/2021	ND (0.011)	ND (0.011)	ND (0.011)	0.0146	ND (0.011)	ND (0.011)	0.0156
RCR-SS9 (1 ft)	8/12/2021	ND (0.0231)	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231)	ND (0.0231) UJ	ND (0.0231) UJ	ND (0.0231) UJ
RCR-SS9 (1 ft) Dup	8/12/2021	0.0457	0.654 J	2.96 J	0.0326	14.1 J	3.57 J	1.97 J
NMED Industrial SSL		3.23	33,680	33,680	32.3	134.2	25,260	25,260
NMED Residential SSL		0.153	2,320	2,320	1.53	22.598	1,740	1,740
NMED Construction Worker SSL		24	10,000	10,000	240	633	7,530	7,530

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 4. METALS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Arsenic, Total (mg/kg)	Barium, Total (mg/kg)	Cadmium, Total (mg/kg)	Chromium, Total (mg/kg)	Lead, Total (mg/kg)	Mercury, Total (mg/kg)	Selenium, Total (mg/kg)	Silver, Total (mg/kg)
RCR-SB-1	08/11/21	1.4 J	450	ND(2)	36 J+	24	0.21 J+	1.3 J	ND(2)
RCR-SB-1 (2.5 ft)	08/11/21	3.7	320	ND(0.49)	60 J+	37	0.035 J+	0.73	ND(0.49)
RCR-SB-1 (4 ft)	08/11/21	0.79	410	ND(0.48)	13 J+	9.3	0.0054 J+	0.7	ND(0.48)
RCR-SB-1 (5 ft)	08/11/21	0.65	340	ND(0.48)	17 J+	12	0.0041 J+	0.84	ND(0.48)
RCR-SB-1 (7.5 ft)	08/11/21	0.59	310	ND(0.49)	20 J+	12	0.0035 J+	0.77	ND(0.49)
RCR-SB-1 (8 ft)	08/11/21	0.83	270	ND(0.52)	21 J+	13	0.0043 J+	0.87	ND(0.52)
RCR-SB-2	08/11/21	ND(5)	730	ND(5)	26 J+	25	0.094 J+	ND(5)	ND(1)
RCR-SB-2 (2 ft)	08/11/21	*ND(19)* *	340	ND(0.49)	47 J+	57	0.062 J+	ND(19)	ND(0.49)
RCR-SB-2 (2 ft) Dup	08/11/21	1.8	310	ND(0.98)	73	84	0.12 J+	1.8	ND(0.98)
RCR-SB-2 (2.5 ft)	08/11/21	*ND(20)* *	270	ND(20)	28 J+	16	0.029 J+	ND(20)	ND(0.5)
RCR-SB-2 (5 ft)	08/11/21	0.73	380	ND(0.49)	15 J+	12	0.0054 J+	0.82	ND(0.49)
RCR-SB-2 (7.5 ft)	08/11/21	0.69	230	ND(0.51)	20 J+	12	0.0045 J+	0.83	ND(0.51)
RCR-SB-2 (8 ft)	08/11/21	0.74	270	ND(0.52)	21 J+	13	0.005 J+	0.83	ND(0.52)
RCR-SB-3	08/11/21	0.87	460	ND(0.5)	19 J+	19	0.031 J+	0.75	ND(0.5)
RCR-SB-3 (2.5 ft)	08/11/21	0.73	460	ND(0.49)	16 J+	14	0.011 J+	0.78	ND(0.49)
RCR-SB-3 (5 ft)	08/11/21	0.73	420	ND(0.48)	13 J+	11	0.022 J+	0.65	ND(0.48)
RCR-SB-3 (7.5 ft)	08/11/21	0.85	470	ND(0.52)	11 J+	8.6	0.0082 J+	0.74	ND(0.52)
RCR-SB-3 (8 ft)	08/11/21	0.82	460	ND(0.49)	12 J+	7.7	0.012 J+	0.61	ND(0.49)
RCR-SB-4	08/11/21	2 J	450	ND(2)	87 J+	9.3	0.063 J+	2 J	ND(2)
RCR-SB-4 (2 ft)	08/11/21	1.5 J	930	ND(2)	20 J+	18	0.068 J+	2.9	ND(2)
RCR-SB-4 (2.5 ft)	08/11/21	0.97	490	ND(0.2)	19 J+	12	0.0084 J+	1.5	ND(0.2)
RCR-SB-4 (5 ft)	08/12/21	0.85 J	350	ND(1)	19	12	0.0063 J+	1.4	ND(1)
RCR-SB-4 (5 ft) Dup	08/12/21	0.93 J	320	ND(1)	21	13	0.0086 J+	2.2	ND(1)
RCR-SB-4 (7.5 ft)	08/11/21	0.97 J	300	ND(1.9)	21	14	0.0068 J+	1.7 J	ND(1.9)
RCR-SB-4 (8 ft)	08/11/21	0.75	390	ND(0.49)	18	13	0.0065 J+	0.78	ND(0.49)
RCR-SB-5	08/11/21	*ND(19)* *	650	ND(19)	43	40	0.08 J+	ND(19)	ND(19)
RCR-SB-5 (2.5 ft)	08/11/21	1.6 J	480	ND(2)	12	13	0.14 J+	1.5 J	ND(2)
RCR-SB-5 (4 ft)	08/11/21	ND(2)	260	ND(2)	14	14	0.0087 J+	1.6 J	ND(2)
RCR-SB-5 (5 ft)	08/11/21	1.5 J	780 J	ND(2.1)	13 J	11 J	0.016 J+	1.4 J	ND(2.1)
RCR-SB-5 (5 ft) Dup	08/11/21	1 J	270 J	ND(1)	6 J	ND(20) UJ	0.012 J+	3.5 J	ND(1)
RCR-SB-5 (7.5 ft)	08/11/21	ND(2)	280	ND(2)	22	15	0.0069 J+	1.7 J	ND(2)
RCR-SB-5 (8 ft)	08/11/21	ND(2.1)	390	ND(2.1)	21	14	0.0072 J+	1.8 J	ND(2.1)
RCR-SB-6	08/11/21	1.5 J	380	ND(2)	18	60	0.13 J+	1.3 J	ND(2)
RCR-SB-6 (2.5 ft)	08/11/21	1.1 J	480	ND(1.9)	15	12	0.0081 J+	1.4 J	ND(1.9)
RCR-SB-6 (3 ft)	08/11/21	1.1 J	360	ND(2)	14	13	0.0089 J+	1.5 J	ND(2)
RCR-SB-6 (3 ft) Dup	08/11/21	1.1	390	ND(1)	16	14	0.01 J+	2	ND(1)
RCR-SS1 (0.5 ft)	08/12/21	ND(2)	360	ND(2)	14	11	0.0074 J+	1.3 J	ND(2)
RCR-SS1 (1 ft)	08/12/21	ND(2)	340	ND(2)	20	13	0.0083 J+	1.7 J	ND(2)
RCR-SS10 (0.5 ft)	08/19/21	1.2	370 J+	ND(0.49)	27 J+	15	0.39 J-	1.7	ND(0.49)

TABLE 4. METALS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Arsenic, Total (mg/kg)	Barium, Total (mg/kg)	Cadmium, Total (mg/kg)	Chromium, Total (mg/kg)	Lead, Total (mg/kg)	Mercury, Total (mg/kg)	Selenium, Total (mg/kg)	Silver, Total (mg/kg)
NMED Industrial SSL		35.88	254,700	417,000	504.6	800	NA	6,489	6,489
NMED Residential SSL		7.07	15,600	85,900	96.6	400	NA	391	391
NMED Construction Worker SSL		216	4,390	3,610	468	800	NA	1,750	1,770
TCLP SSL x20		100	2000	20	100	100	4	20	100
RCR-SS10 (1 ft)	08/19/21	0.89	280 J+	ND(0.51)	19 J+	10	0.011 J-	1.9	ND(0.51)
RCR-SS10 (1 ft) Dup	08/19/21	0.96	270 J+	ND(0.5)	17 J+	10	0.079 J-	1.8	ND(0.5)
RCR-SS11 (0.5 ft)	08/19/21	1.3	380 J+	ND(0.5)	36 J+	23	0.095 J-	1.9	ND(0.5)
RCR-SS11 (1 ft)	08/19/21	1	340 J+	ND(0.49)	30 J+	24	0.14 J-	1.8	ND(0.49)
RCR-SS2 (0.5 ft)	08/12/21	ND(2)	280	ND(2)	18	13	0.0084 J+	1.5 J	ND(2)
RCR-SS2 (1 ft)	08/12/21	ND(2)	280	ND(2)	19	14	0.008 J+	1.6 J	ND(2)
RCR-SS3 (0.5 ft)	08/12/21	1.1 J	360	ND(2.1)	15	66	0.2 J+	ND(2.1)	ND(2.1)
RCR-SS3 (0.5 ft) Dup	08/12/21	1.1	330	ND(1)	23	65	0.03 J+	1.8	ND(1)
RCR-SS3 (1 ft)	08/12/21	1.2 J	370	1.2 J	18	68	0.031 J+	1.1 J	ND(1.9)
RCR-SS4 (0.5 ft)	08/12/21	ND(2)	260	ND(2)	15	12	0.013 J+	1.4 J	ND(2)
RCR-SS4 (1 ft)	08/12/21	ND(2.1)	290	ND(2.1)	15	13	0.0069 J+	1.4 J	ND(2.1)
RCR-SS5 (0.5 ft)	08/12/21	1.4 J	200	ND(19)	11	10	0.013 J+	1.3 J	ND(19)
RCR-SS5 (1 ft)	08/12/21	1.3 J	540	ND(2)	14	24	0.017 J+	ND(2)	ND(2)
RCR-SS6 (0.5 ft)	08/12/21	ND(2)	270	ND(2)	17	11	0.01 J+	1.5 J	ND(2)
RCR-SS6 (1 ft)	08/12/21	1.2 J	270	ND(2)	19	11	0.0089 J+	2.1	ND(2)
RCR-SS7 (0.5 ft)	08/12/21	1.4 J	390	ND(1.9)	31	30	0.1 J+	2	ND(1.9)
RCR-SS7 (1 ft)	08/12/21	1.3 J	370	ND(2)	26	15	0.14 J+	2.2	ND(2)
RCR-SS8 (0.5 ft)	08/12/21	1.2 J	370	ND(1.9)	25	31	0.11 J+	2.1	ND(1.9)
RCR-SS8 (1 ft)	08/12/21	0.97	360	ND(0.97)	18	24	0.021 J+	2.2	ND(0.97)
RCR-SS9 (0.5 ft)	08/12/21	1.9	470	ND(1)	21	43	0.21 J+	2.1	ND(1)
RCR-SS9 (1 ft)	08/12/21	1.9	390	ND(0.96)	36	20	0.21 J+	1.6	ND(0.96)
RCR-SS9 (1 ft) Dup	08/12/21	1	320	ND(0.96)	22	16	0.043 J+	2.1	ND(0.96)
NMED Industrial SSL		35.88	254,700	417,000	504.6	800	NA	6,489	6,489
NMED Residential SSL		7.07	15,600	85,900	96.6	400	NA	391	391
NMED Construction Worker SSL		216	4,390	3,610	468	800	NA	1,750	1,770
TCLP SSL x20		100	2000	20	100	100	4	20	100

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
J+ - Estimated concentration, possibly biased high
J- - Estimated concentration, possibly biased low
mg/kg - Milligrams per kilogram
NA - Not available
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level
TCLP - Toxicity Characteristic Leaching Procedure
UJ - Estimated reporting limit

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

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TABLE 5. GENERAL CHEMISTRY, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Diesel Range Organics (mg/kg)	Gasoline Range Organics (mg/kg)	Oil Range Organics (mg/kg)
RCR-SB-1	08/11/21	37	ND(4.4)	160
RCR-SB-1 (2.5 ft)	08/11/21	*3300*	2.2 J	*1200*
RCR-SB-1 (4 ft)	08/11/21	770	9.6 J+	ND(48)
RCR-SB-1 (5 ft)	08/11/21	470	37 J+	ND(49)
RCR-SB-1 (7.5 ft)	08/11/21	490	*200*	ND(46)
RCR-SB-1 (8 ft)	08/11/21	*1200*	50	ND(440)
RCR-SB-2	08/11/21	650	ND(4.8)	970
RCR-SB-2 (2 ft)	08/11/21	*24000 J*	43	*5300 J*
RCR-SB-2 (2 ft) Dup	08/11/21	*46000 J*	34	*9500 J*
RCR-SB-2 (2.5 ft)	08/11/21	130	*270*	220
RCR-SB-2 (5 ft)	08/11/21	24	ND(5)	ND(45)
RCR-SB-2 (7.5 ft)	08/11/21	ND(9.9)	9.4	ND(49)
RCR-SB-2 (8 ft)	08/11/21	ND(9.3)	10	ND(47)
RCR-SB-3	08/11/21	150	100	200
RCR-SB-3 (2.5 ft)	08/11/21	150	4.2	180
RCR-SB-3 (5 ft)	08/11/21	6.4 J	5 J+	ND(49)
RCR-SB-3 (7.5 ft)	08/11/21	14	3 J	ND(48)
RCR-SB-3 (8 ft)	08/11/21	6.3 J	1.5 J	ND(45)
RCR-SB-4	08/11/21	***4000***	*190*	*1700*
RCR-SB-4 (2 ft)	08/11/21	*3300*	*230*	*3000*
RCR-SB-4 (2.5 ft)	08/11/21	280	16	310
RCR-SB-4 (5 ft)	08/12/21	ND(9.6)	9	ND(48)
RCR-SB-4 (5 ft) Dup	08/12/21	ND(9.9)	6.6	ND(50)
RCR-SB-4 (7.5 ft)	08/11/21	ND(9.3)	2.9 J	ND(47)
RCR-SB-4 (8 ft)	08/11/21	ND(9.8)	5.4	ND(49)
RCR-SB-5	08/11/21	120	ND(4.6)	320
RCR-SB-5 (2.5 ft)	08/11/21	110	40	430
RCR-SB-5 (4 ft)	08/11/21	31	93	91
RCR-SB-5 (5 ft)	08/11/21	*1200 J*	54	*3600*
RCR-SB-5 (5 ft) Dup	08/11/21	710 J	55	*2200*
RCR-SB-5 (7.5 ft)	08/11/21	9.5 J	*270*	ND(49)
RCR-SB-5 (8 ft)	08/11/21	290	*350*	ND(49)
RCR-SB-6	08/11/21	170	2.8 J+	590
RCR-SB-6 (2.5 ft)	08/11/21	*11000*	*290*	ND(980)
RCR-SB-6 (3 ft)	08/11/21	*16000*	*1000*	ND(960)
RCR-SB-6 (3 ft) Dup	08/11/21	*18000*	*670*	*ND(2300)* *
RCR-SS1 (0.5 ft)	08/12/21	12	ND(2.7)	ND(48)
RCR-SS1 (1 ft)	08/12/21	18	ND(3.5)	ND(49)
RCR-SS10 (0.5 ft)	08/19/21	ND(9.7)	ND(2.8)	ND(48)
RCR-SS10 (1 ft)	08/19/21	ND(9.5)	ND(3)	ND(47)
RCR-SS10 (1 ft) Dup	08/19/21	ND(8.7)	ND(3.1)	ND(44)
NMED Industrial SSL		3,000	500	3,800
NMED Residential SSL		1,000	100	1,000
NMED Construction Worker SSL		3,000	500	3,800

TABLE 5. GENERAL CHEMISTRY, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Diesel Range Organics (mg/kg)	Gasoline Range Organics (mg/kg)	Oil Range Organics (mg/kg)
RCR-SS11 (0.5 ft)	08/19/21	ND(9.9)	ND(2.6)	ND(49)
RCR-SS11 (1 ft)	08/19/21	13	ND(2.9)	68
RCR-SS2 (0.5 ft)	08/12/21	470	24	ND(48)
RCR-SS2 (1 ft)	08/12/21	430	74	ND(48)
RCR-SS3 (0.5 ft)	08/12/21	***7600***	***700***	ND(960)
RCR-SS3 (0.5 ft) Dup	08/12/21	***7600***	*420*	ND(990)
RCR-SS3 (1 ft)	08/12/21	*6700*	*770*	ND(930)
RCR-SS4 (0.5 ft)	08/12/21	*1500*	35	440
RCR-SS4 (1 ft)	08/12/21	770	73	ND(48)
RCR-SS5 (0.5 ft)	08/12/21	*1300*	24	ND(500)
RCR-SS5 (1 ft)	08/12/21	*2200 J+*	14	390 J+
RCR-SS6 (0.5 ft)	08/12/21	130	1.1 J	ND(50)
RCR-SS6 (1 ft)	08/12/21	51	11	ND(49)
RCR-SS7 (0.5 ft)	08/12/21	65	ND(3.7)	130
RCR-SS7 (1 ft)	08/12/21	ND(10)	3.8	ND(50)
RCR-SS8 (0.5 ft)	08/12/21	140	ND(3.7)	180
RCR-SS8 (1 ft)	08/12/21	82	1.6 J+	56
RCR-SS9 (0.5 ft)	08/12/21	110	ND(3.5)	86
RCR-SS9 (1 ft)	08/12/21	9.4 J	ND(3.9)	65
RCR-SS9 (1 ft) Dup	08/12/21	16	1.2 J	ND(47)
NMED Industrial SSL		3,000	500	3,800
NMED Residential SSL		1,000	100	1,000
NMED Construction Worker SSL		3,000	500	3,800

bgs - Below ground surface
Dup - Field duplicate
ft - Foot or feet
J - Estimated concentration
J+ - Estimated concentration, possibly biased high
mg/kg - Milligrams per kilogram
ND - Not detected at the reporting limit
NMED - New Mexico Environment Department
SSL - Soil Screening Level

Notes:
1. Bold text indicates results that exceed the NMED Industrial SSL (0 - 1 ft bgs).
2. Italicized text indicates results that exceed the NMED Residential SSL (all depths).
3. Underlined text indicates results that exceed the NMED Construction Worker SSL (deeper than 1 ft bgs)
4. * indicates a non-detected result in which the reporting limit exceeds the NMED Industrial, Residential, and/or Construction Worker SSL.

TABLE 6. SOIL ANALYTICAL RESULTS COMPARED TO NMED CONSTRUCTION DAF 20 SSL EXCEEDANCES, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (mg/kg)	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Benzene (mg/kg)	Benzo(a)anthracene (mg/kg)	Bromodichloromethane (mg/kg)	Chloroform (mg/kg)	Ethylbenzene (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	Toluene (mg/kg)
RCR-SB-1 (4 ft)	8/11/2021	8260B		**1.9**				**0.012**	**0.011**				
		8270D		**1.59**									
RCR-SB-1 (5 ft)	8/11/2021	8260B				**0.1**		**0.026**	**0.028**				
RCR-SB-1 (7.5 ft)	8/11/2021	8260B				**1.1**							
RCR-SB-1 (8 ft)	8/11/2021	8260B				**0.63**							
RCR-SB-2 (2 ft)	8/11/2021	8260B		**5.9**		**0.41**							
		8270D		**4.24**			**0.689**					**0.441**	
RCR-SB-2 (2.5 ft)	8/11/2021	8260B		**3.7**		**0.099**						**1.2**	
RCR-SB-2 (7.5 ft)	8/11/2021	8260B				**0.86**							
RCR-SB-2 (8 ft)	8/11/2021	8260B				**1.2**							
RCR-SB-3	8/11/2021	8260B				**0.58**						**0.12**	
RCR-SB-3 (2.5 ft)	8/11/2021	8260B				**0.13**							
RCR-SB-3 (5 ft)	8/11/2021	8260B						**0.0094**				**0.063**	
RCR-SB-3 (7.5 ft)	8/11/2021	8260B				**0.14**							
RCR-SB-3 (8 ft)	8/11/2021	8260B				**0.066**							
RCR-SB-4	8/11/2021	8260B		**22**	**29**	**0.87**						**4.2**	
		8270C		**32**	**41**								
		8270D		**8.95**	**11.3**							**1.98**	
RCR-SB-4 (2 ft)	8/11/2021	8260B		**17**	**32**	**1.7**						**4.7**	
		8270C			**26**								
		8270D		**1.9**	**2.88**							**0.261**	
RCR-SB-4 (2.5 ft)	8/11/2021	8260B				**0.36**					**1.3**	**0.1**	
RCR-SB-4 (5 ft)	8/12/2021	8260B				**0.63**					**1.5**		
RCR-SB-4 (7.5 ft)	8/11/2021	8260B				**0.5**					**2.3**		
RCR-SB-4 (8 ft)	8/11/2021	8260B				**0.43**					**2.1**		
RCR-SB-5 (2.5 ft)	8/11/2021	8260B				**7.5**					**0.64**		
		8270D										**0.0652**	
RCR-SB-5 (4 ft)	8/11/2021	8260B				**14**					**0.79**		
RCR-SB-5 (5 ft)	8/11/2021	8260B				**0.81**						**0.08**	
RCR-SB-5 (7.5 ft)	8/11/2021	8260B		**1.2**		**2.3**					**2.2**	**1.2**	
		8270D										**0.234**	
RCR-SB-5 (8 ft)	8/11/2021	8260B		**1.6**		**1.4**					**1.5**	**1.6**	
		8270C										**0.75**	
		8270D										**0.561**	
RCR-SB-6	8/11/2021	8260B										**0.17**	
		8270D		**3.62**	**5.5**							**0.871**	
RCR-SB-6 (2.5 ft)	8/11/2021	8260B		**25**	**42**	**0.25**					**1.2**	**20**	
		8270C		**40**	**65**							**33**	

TABLE 6. SOIL ANALYTICAL RESULTS COMPARED TO NMED CONSTRUCTION DAF 20 SSL EXCEEDANCES, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (mg/kg)	1-Methylnaphthalene (mg/kg)	2-Methylnaphthalene (mg/kg)	Benzene (mg/kg)	Benzo(a)anthracene (mg/kg)	Bromodichloromethane (mg/kg)	Chloroform (mg/kg)	Ethylbenzene (mg/kg)	MTBE (mg/kg)	Naphthalene (mg/kg)	Toluene (mg/kg)
		8270D		**30.7**	**52.2**		**0.918**					**17.5**	
		8260B		**38**	**65**	**4.4**				**34**	**11**	**32**	
RCR-SB-6 (3 ft)	8/11/2021	8270C		**70**	**110**							**57**	
		8270D		**43.1**	**68**		**0.96**					**26.6**	
RCR-SS1 (0.5 ft)	8/12/2021	8270D										**0.0821**	
RCR-SS2 (0.5 ft)	8/12/2021	8270D										**0.217**	
RCR-SS2 (1 ft)	8/12/2021	8260B		**2.9**	**3.2**							**0.64**	
		8270D		**6.56**	**6.91**							**1.27**	
		8260B		**7.4**	**13**	**4**				**16**		**10**	**18**
RCR-SS3 (0.5 ft)	8/12/2021	8270C		**21**	**35**							**24**	
		8270D		**11.2**	**16.5**							**5.5**	
		8260B		**7**	**13**	**6.3**				**20**		**13**	**23**
RCR-SS3 (1 ft)	8/12/2021	8270C		**23**	**39**							**26**	
		8270D		**18.2**	**32**							**15**	
RCR-SS4 (0.5 ft)	8/12/2021	8260B		**3.8**	**3.9**	**0.15**					**0.86**	**1.3**	
		8270D		**2.9**	**2.88**							**0.915**	
		8260B		**6.8**	**9.1**	**0.17**					**1.4**	**2.4**	
RCR-SS4 (1 ft)	8/12/2021	8270C		**4.7**	**6.6**							**2.1**	
		8270D		**2.29**	**3.47**							**0.61**	
RCR-SS5 (0.5 ft)	8/12/2021	8260B		**1.6**		**0.066**						**0.25**	
		8260B		**1.3**									
RCR-SS5 (1 ft)	8/12/2021	8270D		**1.01**								**0.178**	
		8260B	**0.019**										
2022 NMED Construction DAF 20 SSL			0.00481	0.893	2.76	0.0418	0.637	0.00621	0.0109	12.3	0.553	0.0583	12.1

DAF - Dilution attenuation factor

ft - foot or feet

ID - Identification

mg/kg - milligrams per kilogram

MTBE - Methyl tert-butyl ether

NMED - New Mexico Environment Department

SSL - Soil screening level

Notes:

Bolded results exceed the 2022 NMED Construction Worker DAF 20 SSL from Table A-1 in the 2022 NMED Risk Assesment Guidance for Site Investigation and Remediation (2022)

Method 8260B - Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C-Selected Ion Monitoring (SIM) - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270D - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

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TABLE 7. GROUNDWATER ANALYTICAL RESULTS OF DETECTED CONSITUENT EXCEEDANCES IN NEARBY MONITORING/RECOVERY WELLS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (µg/L)	1-Methylnaphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Benzene (µg/L)	Benzo(a)anthracene (µg/L)	Bromodichloromethane (µg/L)	Chloroform (µg/L)	Ethylbenzene (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	Toluene (µg/L)
OW-58	9/30/2016	8260B	ND(100)	89	97	32,000		ND(50)		1,500	3,300	240	6,600
		8270C		65	71		ND(10)					160	
OW-58	11/7/2016	8260B	ND(40)	77	61	34,000		ND(20)		1,300	2,700	190	1,100
OW-58	3/29/2017	8260B	ND(200)	70	55	31,000		ND(100)	ND(100)	1,100	3,000	180	
		8270C		57	45		ND(10)					99	
OW-58	6/21/2017	8260B	ND(200)	85	68	38,000		ND(100)	ND(100)	1,200	3,700	150	
		8270C		82	60		ND(10)					120	
OW-58	9/19/2017	8260B	ND(200)	82	57	29,000		ND(100)	ND(100)	1,100	3,100	150	
		8270C		82	56		ND(10)					110	
OW-58	12/6/2017	8260B	ND(200)	38	ND(400)	32,000		ND(100)	ND(100)	1,200	2,900	110	
		8270C		82	53		ND(10)					120	
OW-58	2/20/2018	8260B	ND(200)	95	73	33,000		ND(100)	ND(100)	1,200	2,900	170	
		8270C		90	68		ND(10)					120	
OW-58	5/8/2018	8260B	ND(200)	100	54	38,000		ND(100)	ND(100)	1,200	2,800	170	
		8270C		74	42		ND(10)					99	
OW-58	8/28/2018	8260B	ND(100)	59	45	38,000		ND(50)		1,200	2,900	150	
		8270C		74	53		ND(10)					110	
OW-58	11/29/2018	8260B	ND(100)	60	42	35,000		ND(50)		1,200	2,500	160	
		8270C		ND(100)	ND(100)		ND(100)					ND(100)	
OW-58	3/28/2019	8260B	ND(200)	93	67	25,000		ND(100)	ND(100)	1,100	2,300	170	
		8270C		69	51		ND(10)					110	
OW-58	6/5/2019	8260B	ND(200)	110	79	34,000		ND(100)	ND(100)	1,200	2,300	200	
		8270C		85	61		ND(10)					140	
OW-58	8/22/2019	8260B	ND(100)	83	80	27,000		ND(50)		910	2,400	150	
		8270C		87	53		ND(10)					140	
OW-58	11/18/2019	8260B	ND(100)	78	53	33,000		ND(50)		1,200	2,100	180	
		8270D		86	72		ND(0.2)					180	
OW-58	9/17/2020	8260B	ND(200) UJ	ND(400) UJ	ND(400) UJ	27,000 J		ND(100) UJ	ND(100) UJ	1,300 J	1900 J	190 J	
OW-58	12/22/2020	8270C	ND(200)	ND(1000)	ND(2000)	33,000		ND(200) UJ	ND(200)	1,060	1,830	ND(200)	
OW-58	3/12/2021	8260B	ND(200)	98 J	110 J	33,000		ND(100)	ND(100)	1,200	1,900	230	
OW-58	6/23/2021	8260B	ND(200)	ND(400)	ND(400)	33,000		ND(100)	ND(100)	1,200	1,800	200 U	
OW-58	9/16/2021	8270C					ND(1)						
OW-58	12/14/2021	8260B		ND(400)	100 J	30,000				1,300	1,300	220	
		8270C		63	73							130	
OW-58	3/10/2022	8260B				26,000				1,200	1,000		
		8270C		74 J	83 J								
OW-58	6/29/2022	8260B				28,000				1,200	1,000		
		8270C		68 J	77 J		ND(0.3)					140 J	
OW-58	9/20/2022	8260B				31,000				1,200	1,000		
		8270C		69	79		ND(0.3)					140	
OW-58	12/14/2022	8260B				31,000				1,400	1,200		
		8270C		38	42		ND(0.3)					71 J	
OW-58	3/21/2023	8260B				32,000				1,400	1,000		
		8270C-SIM		67	80		ND(0.3)					150	

TABLE 7. GROUNDWATER ANALYTICAL RESULTS OF DETECTED CONSITUENT EXCEEDANCES IN NEARBY MONITORING/RECOVERY WELLS, RAIL CAR LOADING AREA RELEASE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Location ID	Date Sampled	Method	1,1,2,2-Tetrachloroethane (µg/L)	1-Methylnaphthalene (µg/L)	2-Methylnaphthalene (µg/L)	Benzene (µg/L)	Benzo(a)anthracene (µg/L)	Bromodichloromethane (µg/L)	Chloroform (µg/L)	Ethylbenzene (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	Toluene (µg/L)
OW-58	6/15/2023	8260B				**32,000**				**1,300**	**1,400**		
		8270C-SIM		**72**	**82**		**ND(0.4)**					**150**	
OW-58	9/28/2023	8260B				**32,000**				**1,400**	**970**		
		8270C-SIM		**60**	**63**		**ND(0.4)**					**120**	
OW-58	12/21/2023	8260B				**31,000**				**1,400**			
		8270C-SIM		**87**	**95**		**ND(4)**				**830**	**180**	
OW-58A	3/6/2020	8260B	**ND(100)**	**140 J**	**210**	**9,700**		**ND(50)**			**2,800**	**250**	
		8270D		**130**	**190 J**		**ND(0.5)**					**250 J**	
OW-58A	9/18/2020	8260B	**ND(100)**	**120**	**180**	**6,900**		**ND(50)**			**2,500**	**280**	
OW-58A	12/23/2020	8260C	**ND(50)**	**ND(250)**	**ND(500)**	**6,070**		**ND(50)**			**2,430**	**127**	
OW-58A	3/12/2021	8260B	**ND(100)**	**120 J**	**180 J**	**7,700**		**ND(50)**			**2,500**	**250**	
OW-58A	6/23/2021	8260B	**ND(100)**	**120 J**	**120 J**	**6,800**		**ND(50)**			**2,600**	**260**	
OW-58A	9/16/2021	8270C		**74**	**60**							**120**	
OW-58A	12/14/2021	8260B		**140 J**	**160 J**	**6,900**					**2,500**	**250**	
		8270C		**90**	**79**							**160**	
OW-58A	3/10/2022	8260B				**6,300**					**2,300**		
		8270C		**91 J**	**89 J**								
OW-58A	6/29/2022	8260B				**6,500**					**2,300**		
		8270C		**100 J**	**97 J**		**ND(0.3)**					**190 J**	
OW-58A	9/20/2022	8260B				**8,900**				**1,000**	**2,200**		**6,300 J**
		8270C		**76**	**87**		**0.2 J**					**160**	
RW-1	8/23/2012	8260B	**ND(2000)**	**ND(4000)**	**ND(4000)**	**45,000**		**ND(1000)**	**ND(1000)**	**4,900**	**3,100**	**ND(2000)**	**82,000**
		8270C		**300**	**610**		**ND(10)**					**890**	
RW-1	9/16/2013	8260B	**ND(2000)**	**ND(4000)**	**ND(4000)**	**54,000**		**ND(1000)**	**ND(1000)**	**2,400**	**2,200**	**ND(2000)**	**35,000**
		8270C		**190**	**210**		**ND(10)**					**430**	
RW-1	9/18/2014	8260B	**ND(2000)**	**ND(4000)**	**ND(4000)**	**37,000**		**ND(1000)**	**ND(1000)**	**1,800**	**1,200**	**ND(2000)**	**35,000**
		8270C		**71**	**61**		**ND(10)**					**130**	
2022 NMED GW Cleanup Level			10	11.38	35.1	5	0.12	1.34	100	700	143	**30**	1,000
RW-01 max detect			--	300	610	54,000	--	--	--	4,900	3,100	890	82,000
OW-58 max detect			--	110	110	38,000	--	--	--	1,500	3,700	240	6,600
OW-58A max detect			--	140	210	9,700	0.2	--	--	1,000	2,800	280	6,300

GW - Groundwater

MTBE - Methyl tert-butyl ether

NMED - New Mexico Environment Department

µg/L - micrograms per Liter

Notes:

Bolded results exceed the 2022 NMED GW Cleanup Levels in Table A-1 from the 2022 NMED Risk Assesment Guidance for Site Investigation and Remediation (2022).

Method 8260B - Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270C-Selected Ion Monitoring (SIM) - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Method 8270D - Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry

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TABLE 8. RAIL CAR LOADING AREA RELEASE INTERIM RESPONSE EVALUATION SUMMARY TABLE
WESTERN REFINING SOUTHWEST LLC, D/B/A MARATHON GALLUP REFINERY, GALLUP, NEW MEXICO

Detected Constituent exceeding 2022 NMED Construction DAF 20 SSL	Number of samples with DAF exceedances	Order(s) of magnitude difference between maximum detected result and DAF SSL	Detected exceedance(s) in nearby wells (OW-58, OW-58A, RW-01)	Is there a need for an interim response to prevent the migration of the constituent to groundwater?
1,1,2,2-Tetrachloroethane	1	1	No	No. One sample location within one order of magnitude exceedance greater than DAF Screening Level.
1-Methylnaphthalene	17	2	Yes	No. Constituent detected in nearby monitoring wells
2-Methylnaphthalene	10	2	Yes	No. Constituent detected in nearby monitoring wells
Benzene	29	3	Yes	No. Constituent detected in nearby monitoring wells
Benzo(a)anthracene	3	0	Yes	No. Constituent detected in nearby monitoring well.
Bromodichloromethane	3	1	No	No. Three sample locations with exceedances only one order of magnitude greater than DAF Screening Level
Chloroform	2	0	No	No. Two sample locations with exceedances on the same order of magnitude as DAF Screening Level.
Ethylbenzene	3	0	Yes	No. Three sample locations on the same order of magnitude as DAF Screening Level. Also, consituent detected in nearby monitoring wells.
MTBE	12	2	Yes	No. Constituent detected in nearby monitoring wells
Naphthalene	23	3	Yes	No. Constituent detected in nearby monitoring wells
Toluene	2	0	Yes	No. Constituent detected in nearby monitoring wells. Also, only present in two sample locations on the same order of magnitude as DAF Screening Level

DAF - Dilution attenuation factor
MTBE - Methyl tert-butyl ether
NMED - New Mexico Environment Department
SSL - Soil screening level
Notes:
2022 NMED Construction Worker DAF 20 SSL from Table A-1 in the 2022 NMED Risk Assesment Guidance for Site Investigation and Remediation (2022)

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Appendix A – Boring Logs

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-1

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 09:30	8/11/21 10:20

Type of Sampling Device	Water Level (bgs)	Final
5' Macrosampler	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Cloudy, humid, good temp. (66°)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-4' ~3' recovery	0	0.0
				medium-brown silty clay; cohesive, damp, soft; dark grey HC-staining from 1-4'; slight HC order @ surface becoming stronger w/ depth; highly plastic; occ. med-grained calcareous material towards 4'		
1					1	0.0
2			12		2	6.0
3					3	12.5
4				4-8' HC odor throughout	4	107.4
			5	4-6.5' SAA		
5					5	21.2
6				6.5-7' sandy-clayey-silt; dark grey-brown; cohesive; mildly plastic; damp-dry; no % VF-F sand, 20% clay, 60% silt	6	31.8
7				7-8' med-brown clay w/ occ. dark grey HC staining, occ. org. fragments & 1mm calcareous lenses	7	75.1
8					8	31.6
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-2

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 10:45	8/11/21 11:45

Type of Sampling Device	Water Level (bgs)	Final
Split Spoon + 5' Continuous Core	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Cloudy, slight breeze, good temp. (70°)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				SPLIT-SPOON 0-2' 0-1' med-brown sandy (10%)-silty (20%)-clay (70%); highly plastic; HC order slight ~1'; broke through limestone cobble 0-0.5'; soft	0	0.0
1			16	1-2' SAA but dark brown grey-black from HC staining; moist w/ tar; consistency of taffy; sheen; HC odor; sand VF-F, well-sorted	1	16.5
2				CONTINUOUS CORE 2-4' 1.5' recovery greyish-brown slightly silty-clay; HC staining & pockets of tar throughout; soft, highly plastic & cohesive, slight HC odor	2	274.7
3					3	17.3
4				4-8' HC odor throughout; uniform slightly silty-clay, med-brown, highly plastic & cohesive, moderately soft; occ. black HC staining throughout	4	0.9
5					5	0.1
6					6	1.1
7					7	3.6
					7.5	16.9
8					8	15.4
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-3

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 12:05	8/11/21 12:35

Type of Sampling Device	Water Level (bgs)	Final
Continuous Core	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Sunny, slightly breezy, good temp. (75°)

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-4' HC odor throughout; ~2' recovery 0-0.5' dark brown-black HC-stained dry silty-clay w/ limestone gravel; dense, mildly plastic	0	16.7
1				0.5-2' SAA but w/o gravel	1	5.7
2			20	2-4' greyish-tan-brown sandy (25%)-silty (25%)-clay (50%); cohesive, non-plastic, dry; sand VF-F, moderately well-sorted	2	17.2
3					3	9.9
4				4-8' 4-6' brown silty-clay; mildly plastic, damp, cohesive; slight HC odor; occ. lenses w/ ~20% sand (VF-F)	4	0.8
5					5	8.2
6				6-7.5' black, saturated, HC-rich material of similar comp. to 2-4' interval; brick fragment 6-6.5'	6	14.7
7					7	33.2
8				7.5-8' poorly-sorted sand, F-C, subangular-subround, loose, damp, soft; very mixed minerology; HC stained grey-tan	8	60.2
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1 LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-4

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 13:30	8/11/21 14:00

Type of Sampling Device	Water Level (bgs)	Final
Continuous Core	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Hot, sunny, slightly breeze

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-0.5' asphalt topped w/ 1" thick of gravel road base; averaged through this section	0	98.1
				0.5-4' 2' recovery; slight HC odor throughout		
				0.5-2' ---> dense/med. brown silty (20%)-gravely (10%)-clay (70%); gravel angular-subangular, & up to 2 cm diam; dry; some dark grey HC staining		
1					1	120.8
2			35	2-4' ---> med. brown highly plastic silty-clay; moderately soft, cohesive; some dark grey HC staining	2	223.0
3					3	78.7
4				4-8' HC odor & dark grey staining throughout	4	8.3
				4-4.2' SAA but ~5% VF-F sand; moist		
				4.2-8' uniform, dense, cohesive, highly plastic med. brown silty-clay; occ. roots		
5					5	5.8
6					6	4.0
7					7	4.9
8					8	6.3
				8/12/2021 07:25 - going back down hole to grab 5' sample		
				0-4' solid flight auger		
				4-6' split spoon*		
				*material consistent w/ that logged yesterday for same interval		
9				PID reading @ 5' today ~ 15.9ppm		

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-5

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
Terracon	Jeff Cathron		8 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Geoprobe	Direct Push	2.5"	8/11/21 14:10	8/11/21 14:40

Type of Sampling Device	Water Level (bgs)	Final
Continuous Core / Split Spoon	ND feet-bgs	8'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Hot, sunny, slightly breeze

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-4' 2' recoverv 0-1' ---> silty-sandy-clayey (30%) gravel (70%) up to 5 cm diam; mostly limestone, dry, loose, extremely poorly-sorted; brown to grey	0	0.0
1				1-2' ---> SAA but somewhat consolidated	1	0.0
2			39	2-4' ---> predominantly med-brown silty-clay; cohesive, dense, stiff; black HC staining, HC odor; layer (~0.5') of gravel/sand/silt/clay mix from 2.5-3', bottom 2" of section has ~10% content of VP sand	2	0.0
3					3	11.0
4				CONTINUOUS SPLIT SPOON 4-6'	4	369.8
5				4'-4.5' ---> med-brown silty-clay, very cohesive & plastic medium stiffness, occ. black HC staining, slight HC odor 4.5'-5.5' ---> silty (20%)-clayey (20%)-sandy (20%)-gravel (40%); very poorly sorted, reddish-brown to tan; HC odor; gravel up to 3 cm diam, mostly angular limestone, dry, loose	5	115.4
6				5.5'-6' ---> med-brown clay w/ occ. dark grey HC staining, strong HC odor; highly plastic, moderate stiffness, dense, cohesive	6	37.6
7				6-8' SAA CONTINUOUS	7	56.3
8					8	367.4
9						

Trihydro CORPORATION

Lithology Log Sheet 1 of 1

LOCID

Project Name	Project Number	Borehole ID
Gallup Refinery, Rail Car Release	697-089-001	RCR-SB-6

Drilling Company	Driller	Ground Elevation	Total Drilled Depth
THC	Brian McLoughlin		3 feet-bgs

Drilling Equipment	Drilling Method	Borehole Diameter	Date/Time Drilling Started	Date/Time Total Depth Reached
Hand Auger	Hand Auger	3"	8/11/21 14:45	8/11/21 15:10

Type of Sampling Device	Water Level (bgs)	Final
Hand Auger	ND feet-bgs	3'

PID/FID (make, model, serial no.)	Geologist	Checked by/Date
PID (Honeywell Mini RAE Lite) - PGM7300	Kara Hoppes	

Location Description (include sketch in field logbook)	Weather Conditions (temp., clear, rain, wind)
	Hot, sunny, breezy

Depth	Interval	Recovery	Blow Counts	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	Screened Interval (ft-bgs)	PID (ppm)
0				0-0.75' dark brown clayey (20%)-sandy (10%)-silt (65%) w/ occ. gravel (5%); loose, soft; HC odor	0	107.7
1				0.75-1.5' strong HC odor, damp, cohesive mildly plastic; med-brown silty clay; med. stiffness; black HC staining; rare calcareous fragments up to 1 cm diam.	1	226.6
2				1.5-2.25' strong HC odor, damp, soft, mildly cohesive; med-brown clayey-silt; black HC staining throughout	2	877.0
3				2.25-3' moist w/ gasoline (yellow product visible on auger & w/in sample bag); overwhelming odor; otherwise SAA Concrete @ 3' ---> cannot continue any deeper	3	902.0
4					4	
5					5	
6					6	
7					7	
8					8	
9						

Appendix B – Laboratory Analytical Reports

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

September 13, 2021

Brian McLoughlin

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL: (505) 722-3833
FAX

RE: Railcar Release Investigation OrderNo.: 2108A86

Dear Brian McLoughlin:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/19/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:45:00 AM
Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	4.8	9.7		mg/Kg	1	8/21/2021 4:50:57 PM	62104
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/21/2021 4:50:57 PM	62104
Surr: DNOP	116	0	70-130		%Rec	1	8/21/2021 4:50:57 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	0.24	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
Barium	370	4.9	9.7		mg/Kg	100	8/31/2021 5:22:18 PM	62196
Cadmium	ND	0.24	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
Chromium	27	0.49	0.97		mg/Kg	10	8/31/2021 5:27:33 PM	62196
Lead	15	0.97	1.9		mg/Kg	20	8/31/2021 12:16:27 PM	62196
Selenium	1.7	0.28	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
Silver	ND	0.24	0.49		mg/Kg	5	8/31/2021 12:21:50 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.39	0.013	0.16		mg/Kg	5	9/1/2021 1:26:40 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Chloronaphthalene	ND	0.93	2.5	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:45:00 AM
Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:45:00 AM
Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/27/2021 11:27:29 PM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/27/2021 11:27:29 PM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.0053	0.014		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Toluene	ND	0.0036	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Ethylbenzene	ND	0.0067	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Methyl tert-butyl ether (MTBE)	ND	0.016	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,4-Trimethylbenzene	ND	0.0039	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,3,5-Trimethylbenzene	ND	0.0062	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dichloroethane (EDC)	ND	0.0063	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dibromoethane (EDB)	ND	0.011	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Naphthalene	ND	0.010	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1-Methylnaphthalene	ND	0.032	0.11		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Methylnaphthalene	ND	0.026	0.11		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Acetone	ND	0.090	0.41		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromobenzene	ND	0.0059	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromodichloromethane	ND	0.0035	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromoform	ND	0.0067	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Bromomethane	ND	0.046	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Butanone	ND	0.12	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Carbon disulfide	ND	0.011	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Carbon tetrachloride	ND	0.0031	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chlorobenzene	ND	0.0050	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chloroethane	ND	0.010	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chloroform	ND	0.0039	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Chloromethane	ND	0.0097	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Chlorotoluene	ND	0.0037	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS10 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:45:00 AM
Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.015	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
cis-1,2-DCE	ND	0.014	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
cis-1,3-Dichloropropene	ND	0.0041	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dibromo-3-chloropropane	ND	0.012	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Dibromochloromethane	ND	0.0044	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Dibromomethane	ND	0.0065	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dichlorobenzene	ND	0.0057	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,3-Dichlorobenzene	ND	0.0052	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,4-Dichlorobenzene	ND	0.0074	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Dichlorodifluoromethane	ND	0.011	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1-Dichloroethane	ND	0.0080	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1-Dichloroethene	ND	0.0059	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2-Dichloropropane	ND	0.0054	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,3-Dichloropropane	ND	0.0061	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2,2-Dichloropropane	ND	0.0039	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1-Dichloropropene	ND	0.0033	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Hexachlorobutadiene	ND	0.019	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
2-Hexanone	ND	0.012	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Isopropylbenzene	ND	0.0051	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
4-Isopropyltoluene	ND	0.0071	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
4-Methyl-2-pentanone	ND	0.032	0.28		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Methylene chloride	ND	0.020	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
n-Butylbenzene	ND	0.0074	0.083		mg/Kg	1	8/26/2021 1:42:57 AM	62159
n-Propylbenzene	ND	0.0045	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
sec-Butylbenzene	ND	0.023	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Styrene	ND	0.0038	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
tert-Butylbenzene	ND	0.0064	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,1,2-Tetrachloroethane	ND	0.0041	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,2,2-Tetrachloroethane	ND	0.0089	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Tetrachloroethene (PCE)	ND	0.0076	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
trans-1,2-DCE	ND	0.0053	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
trans-1,3-Dichloropropene	ND	0.0065	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,3-Trichlorobenzene	ND	0.0043	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,4-Trichlorobenzene	ND	0.0096	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,1-Trichloroethane	ND	0.0061	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,1,2-Trichloroethane	ND	0.0069	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Trichloroethene (TCE)	ND	0.0054	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Trichlorofluoromethane	ND	0.0063	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
1,2,3-Trichloropropane	ND	0.012	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS10 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:45:00 AM
Lab ID: 2108A86-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0053	0.028		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Xylenes, Total	ND	0.015	0.055		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
Surr: 1,2-Dichloroethane-d4	113		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
Surr: Toluene-d8	104		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
Surr: 4-Bromofluorobenzene	105		70-130		%Rec	1	8/26/2021 1:42:57 AM	62159
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	ND	0.77	2.8		mg/Kg	1	8/26/2021 1:42:57 AM	62159
Surr: BFB	98.4	0	70-130		%Rec	1	8/26/2021 1:42:57 AM	62159

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	4.7	9.5		mg/Kg	1	8/21/2021 5:03:31 PM	62104
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/21/2021 5:03:31 PM	62104
Surr: DNOP	112	0	70-130		%Rec	1	8/21/2021 5:03:31 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.89	0.26	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
Barium	280	4.1	8.2		mg/Kg	80	9/2/2021 3:30:56 PM	62196
Cadmium	ND	0.26	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
Chromium	19	0.26	0.51		mg/Kg	5	8/31/2021 5:34:29 PM	62196
Lead	10	0.26	0.51		mg/Kg	5	8/31/2021 5:34:29 PM	62196
Selenium	1.9	0.29	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
Silver	ND	0.26	0.51		mg/Kg	5	8/31/2021 12:59:33 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.011	0.0027	0.034	J	mg/Kg	1	9/1/2021 1:05:04 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzoic acid	ND	1.2	9.7	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Chloro-3-methylphenol	ND	0.82	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Diethyl phthalate	ND	3.2	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dinitrophenol	ND	0.49	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:08:50 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 12:08:50 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0057	0.015		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Toluene	ND	0.0038	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Ethylbenzene	ND	0.0072	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.017	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0042	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0066	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0067	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.012	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Naphthalene	ND	0.011	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1-Methylnaphthalene	ND	0.034	0.12		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Methylnaphthalene	ND	0.027	0.12		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Acetone	ND	0.096	0.44		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromobenzene	ND	0.0063	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromodichloromethane	ND	0.0038	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromoform	ND	0.0071	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Bromomethane	ND	0.049	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Butanone	ND	0.13	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Carbon disulfide	ND	0.012	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Carbon tetrachloride	ND	0.0033	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chlorobenzene	ND	0.0053	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chloroethane	ND	0.011	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chloroform	ND	0.0042	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Chloromethane	ND	0.010	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Chlorotoluene	ND	0.0040	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS10 (1')
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
cis-1,2-DCE	ND	0.015	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
cis-1,3-Dichloropropene	ND	0.0044	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.013	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Dibromochloromethane	ND	0.0047	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Dibromomethane	ND	0.0069	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dichlorobenzene	ND	0.0061	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,3-Dichlorobenzene	ND	0.0056	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,4-Dichlorobenzene	ND	0.0079	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Dichlorodifluoromethane	ND	0.011	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1-Dichloroethane	ND	0.0086	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1-Dichloroethene	ND	0.0063	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2-Dichloropropane	ND	0.0058	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,3-Dichloropropane	ND	0.0065	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2,2-Dichloropropane	ND	0.0042	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1-Dichloropropene	ND	0.0036	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Hexachlorobutadiene	ND	0.020	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
2-Hexanone	ND	0.013	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Isopropylbenzene	ND	0.0055	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
4-Isopropyltoluene	ND	0.0076	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
4-Methyl-2-pentanone	ND	0.034	0.30		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Methylene chloride	ND	0.021	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
n-Butylbenzene	ND	0.0079	0.089		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
n-Propylbenzene	ND	0.0048	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
sec-Butylbenzene	ND	0.024	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Styrene	ND	0.0040	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
tert-Butylbenzene	ND	0.0068	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0043	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.0096	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Tetrachloroethene (PCE)	ND	0.0081	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
trans-1,2-DCE	ND	0.0057	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
trans-1,3-Dichloropropene	ND	0.0069	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0046	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,4-Trichlorobenzene	ND	0.010	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,1-Trichloroethane	ND	0.0065	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,1,2-Trichloroethane	ND	0.0074	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Trichloroethene (TCE)	ND	0.0058	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Trichlorofluoromethane	ND	0.0067	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
1,2,3-Trichloropropane	ND	0.012	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS10 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 11:50:00 AM
Lab ID: 2108A86-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0056	0.030		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Xylenes, Total	ND	0.016	0.059		mg/Kg	1	8/30/2021 3:53:19 PM	A80915
Surr: Dibromofluoromethane	108		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
Surr: 1,2-Dichloroethane-d4	88.7		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
Surr: Toluene-d8	103		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
Surr: 4-Bromofluorobenzene	93.2		70-130		%Rec	1	8/30/2021 3:53:19 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.82	3.0		mg/Kg	1	8/30/2021 3:53:19 PM	B80915
Surr: BFB	98.7	0	70-130		%Rec	1	8/30/2021 3:53:19 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	9.9		mg/Kg	1	8/24/2021 3:32:21 PM	62104
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/24/2021 3:32:21 PM	62104
Surr: DNOP	113	0	70-130		%Rec	1	8/24/2021 3:32:21 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.3	0.25	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
Barium	380	5.0	10		mg/Kg	100	8/31/2021 5:48:21 PM	62196
Cadmium	ND	0.25	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
Chromium	36	0.50	1.0		mg/Kg	10	8/31/2021 5:51:48 PM	62196
Lead	23	0.50	1.0		mg/Kg	10	8/31/2021 5:51:48 PM	62196
Selenium	1.9	0.29	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
Silver	ND	0.25	0.50		mg/Kg	5	8/31/2021 1:15:42 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.095	0.0026	0.032		mg/Kg	1	9/1/2021 1:07:13 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 12:50:08 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 12:50:08 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0050	0.013		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Toluene	ND	0.0034	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Ethylbenzene	ND	0.0064	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.015	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0037	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0059	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0059	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.010	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Naphthalene	ND	0.0097	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1-Methylnaphthalene	ND	0.030	0.10		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Methylnaphthalene	ND	0.024	0.10		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Acetone	ND	0.085	0.39		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromobenzene	ND	0.0055	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromodichloromethane	ND	0.0033	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromoform	ND	0.0063	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Bromomethane	ND	0.043	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Butanone	ND	0.11	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Carbon disulfide	ND	0.011	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Carbon tetrachloride	ND	0.0029	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chlorobenzene	ND	0.0047	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chloroethane	ND	0.0098	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chloroform	ND	0.0037	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Chloromethane	ND	0.0091	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Chlorotoluene	ND	0.0035	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS11 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
cis-1,2-DCE	ND	0.013	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
cis-1,3-Dichloropropene	ND	0.0039	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.011	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Dibromochloromethane	ND	0.0042	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Dibromomethane	ND	0.0061	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dichlorobenzene	ND	0.0054	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,3-Dichlorobenzene	ND	0.0049	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,4-Dichlorobenzene	ND	0.0070	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Dichlorodifluoromethane	ND	0.010	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1-Dichloroethane	ND	0.0076	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1-Dichloroethene	ND	0.0056	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2-Dichloropropane	ND	0.0051	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,3-Dichloropropane	ND	0.0057	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2,2-Dichloropropane	ND	0.0037	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1-Dichloropropene	ND	0.0031	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Hexachlorobutadiene	ND	0.018	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
2-Hexanone	ND	0.011	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Isopropylbenzene	ND	0.0048	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
4-Isopropyltoluene	ND	0.0067	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
4-Methyl-2-pentanone	ND	0.030	0.26		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Methylene chloride	ND	0.019	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
n-Butylbenzene	ND	0.0070	0.078		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
n-Propylbenzene	ND	0.0042	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
sec-Butylbenzene	ND	0.021	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Styrene	ND	0.0036	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
tert-Butylbenzene	ND	0.0060	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0038	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.0084	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Tetrachloroethene (PCE)	ND	0.0071	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
trans-1,2-DCE	ND	0.0050	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
trans-1,3-Dichloropropene	ND	0.0061	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0040	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,4-Trichlorobenzene	ND	0.0091	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,1-Trichloroethane	ND	0.0058	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,1,2-Trichloroethane	ND	0.0065	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Trichloroethene (TCE)	ND	0.0051	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Trichlorofluoromethane	ND	0.0059	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
1,2,3-Trichloropropane	ND	0.011	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:00:00 PM
Lab ID: 2108A86-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0050	0.026		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Xylenes, Total	ND	0.014	0.052		mg/Kg	1	8/30/2021 5:19:47 PM	A80915
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
Surr: 1,2-Dichloroethane-d4	92.5		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
Surr: Toluene-d8	98.6		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
Surr: 4-Bromofluorobenzene	98.8		70-130		%Rec	1	8/30/2021 5:19:47 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.72	2.6		mg/Kg	1	8/30/2021 5:19:47 PM	B80915
Surr: BFB	104	0	70-130		%Rec	1	8/30/2021 5:19:47 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	13	4.9	10		mg/Kg	1	8/24/2021 3:56:20 PM	62104
Motor Oil Range Organics (MRO)	68	50	50		mg/Kg	1	8/24/2021 3:56:20 PM	62104
Surr: DNOP	122	0	70-130		%Rec	1	8/24/2021 3:56:20 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.0	0.25	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
Barium	340	4.9	9.8		mg/Kg	100	8/31/2021 5:55:15 PM	62196
Cadmium	ND	0.25	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
Chromium	30	0.49	0.98		mg/Kg	10	8/31/2021 5:58:43 PM	62196
Lead	24	0.49	0.98		mg/Kg	10	8/31/2021 5:58:43 PM	62196
Selenium	1.8	0.28	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
Silver	ND	0.25	0.49		mg/Kg	5	8/31/2021 1:31:51 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.14	0.0028	0.035		mg/Kg	1	9/1/2021 1:09:23 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dichlorophenol	ND	0.78	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 1:31:29 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 1:31:29 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0055	0.014		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Toluene	ND	0.0037	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Ethylbenzene	ND	0.0070	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.016	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0041	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0064	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0065	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.011	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Naphthalene	ND	0.011	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1-Methylnaphthalene	ND	0.033	0.11		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Methylnaphthalene	ND	0.027	0.11		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Acetone	ND	0.094	0.43		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromobenzene	ND	0.0061	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromoform	ND	0.0069	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Bromomethane	ND	0.048	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Butanone	ND	0.12	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Carbon tetrachloride	ND	0.0032	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chlorobenzene	ND	0.0052	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chloroethane	ND	0.011	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chloroform	ND	0.0041	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Chloromethane	ND	0.010	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Chlorotoluene	ND	0.0038	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS11 (1')
Project: Railcar Release Investigation
Collection Date: 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
cis-1,2-DCE	ND	0.014	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
cis-1,3-Dichloropropene	ND	0.0043	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.012	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Dibromochloromethane	ND	0.0046	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Dibromomethane	ND	0.0067	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dichlorobenzene	ND	0.0060	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,3-Dichlorobenzene	ND	0.0054	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,4-Dichlorobenzene	ND	0.0077	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1-Dichloroethane	ND	0.0084	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1-Dichloroethene	ND	0.0062	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2-Dichloropropane	ND	0.0056	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,3-Dichloropropane	ND	0.0063	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2,2-Dichloropropane	ND	0.0041	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1-Dichloropropene	ND	0.0035	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Hexachlorobutadiene	ND	0.020	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Isopropylbenzene	ND	0.0053	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
4-Isopropyltoluene	ND	0.0074	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
4-Methyl-2-pentanone	ND	0.033	0.29		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Methylene chloride	ND	0.021	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
n-Butylbenzene	ND	0.0077	0.086		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
n-Propylbenzene	ND	0.0046	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
sec-Butylbenzene	ND	0.024	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Styrene	ND	0.0039	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
tert-Butylbenzene	ND	0.0066	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0042	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.0093	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Tetrachloroethene (PCE)	ND	0.0079	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
trans-1,2-DCE	ND	0.0055	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
trans-1,3-Dichloropropene	ND	0.0067	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0044	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,1-Trichloroethane	ND	0.0063	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,1,2-Trichloroethane	ND	0.0072	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Trichloroethene (TCE)	ND	0.0056	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Trichlorofluoromethane	ND	0.0065	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
1,2,3-Trichloropropane	ND	0.012	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS11 (1')
Project: Railcar Release Investigation **Collection Date:** 8/19/2021 12:10:00 PM
Lab ID: 2108A86-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0055	0.029		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Xylenes, Total	ND	0.015	0.057		mg/Kg	1	8/30/2021 6:46:14 PM	A80915
Surr: Dibromofluoromethane	114		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
Surr: 1,2-Dichloroethane-d4	98.0		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
Surr: Toluene-d8	103		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
Surr: 4-Bromofluorobenzene	96.7		70-130		%Rec	1	8/30/2021 6:46:14 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.80	2.9		mg/Kg	1	8/30/2021 6:46:14 PM	B80915
Surr: BFB	108	0	70-130		%Rec	1	8/30/2021 6:46:14 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	4.3	8.7		mg/Kg	1	8/21/2021 5:53:44 PM	62104
Motor Oil Range Organics (MRO)	ND	44	44		mg/Kg	1	8/21/2021 5:53:44 PM	62104
Surr: DNOP	116	0	70-130		%Rec	1	8/21/2021 5:53:44 PM	62104
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.96	0.25	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
Barium	270	4.0	8.1		mg/Kg	80	9/2/2021 3:33:37 PM	62196
Cadmium	ND	0.25	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
Chromium	17	0.25	0.50		mg/Kg	5	8/31/2021 6:12:39 PM	62196
Lead	10	0.25	0.50		mg/Kg	5	8/31/2021 6:12:39 PM	62196
Selenium	1.8	0.29	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
Silver	ND	0.25	0.50		mg/Kg	5	8/31/2021 2:21:41 PM	62196
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.079	0.0026	0.033		mg/Kg	1	9/1/2021 1:11:33 PM	62297
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Isophorone	ND	0.79	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/28/2021 2:12:41 AM	62157
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/28/2021 2:12:41 AM	62157
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0060	0.016		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Toluene	ND	0.0040	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Ethylbenzene	ND	0.0076	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Methyl tert-butyl ether (MTBE)	ND	0.018	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,4-Trimethylbenzene	ND	0.0044	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,3,5-Trimethylbenzene	ND	0.0070	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dichloroethane (EDC)	ND	0.0071	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Naphthalene	ND	0.012	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1-Methylnaphthalene	ND	0.036	0.12		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Methylnaphthalene	ND	0.029	0.12		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Acetone	ND	0.10	0.47		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromobenzene	ND	0.0066	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromodichloromethane	ND	0.0040	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromoform	ND	0.0075	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Bromomethane	ND	0.052	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Butanone	ND	0.14	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Carbon tetrachloride	ND	0.0035	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chlorobenzene	ND	0.0056	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chloroethane	ND	0.012	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chloroform	ND	0.0044	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Chloromethane	ND	0.011	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Chlorotoluene	ND	0.0042	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dibromo-3-chloropropane	ND	0.013	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Dibromochloromethane	ND	0.0050	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Dibromomethane	ND	0.0073	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dichlorobenzene	ND	0.0065	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,3-Dichlorobenzene	ND	0.0059	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,4-Dichlorobenzene	ND	0.0083	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1-Dichloroethane	ND	0.0091	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1-Dichloroethene	ND	0.0067	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2-Dichloropropane	ND	0.0061	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,3-Dichloropropane	ND	0.0068	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2,2-Dichloropropane	ND	0.0044	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1-Dichloropropene	ND	0.0038	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Hexachlorobutadiene	ND	0.021	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
2-Hexanone	ND	0.014	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Isopropylbenzene	ND	0.0058	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
4-Isopropyltoluene	ND	0.0080	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Methylene chloride	ND	0.023	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
n-Butylbenzene	ND	0.0083	0.093		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
n-Propylbenzene	ND	0.0050	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
sec-Butylbenzene	ND	0.026	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Styrene	ND	0.0042	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
tert-Butylbenzene	ND	0.0072	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,1,2-Tetrachloroethane	ND	0.0046	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,2,2-Tetrachloroethane	ND	0.010	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Tetrachloroethene (PCE)	ND	0.0085	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
trans-1,2-DCE	ND	0.0060	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
trans-1,3-Dichloropropene	ND	0.0073	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,3-Trichlorobenzene	ND	0.0048	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,1-Trichloroethane	ND	0.0069	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,1,2-Trichloroethane	ND	0.0078	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Trichloroethene (TCE)	ND	0.0061	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Trichlorofluoromethane	ND	0.0071	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
1,2,3-Trichloropropane	ND	0.013	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD7
Project: Railcar Release Investigation **Collection Date:** 8/19/2021
Lab ID: 2108A86-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0059	0.031		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Xylenes, Total	ND	0.016	0.062		mg/Kg	1	8/30/2021 7:15:00 PM	A80915
Surr: Dibromofluoromethane	113		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
Surr: 1,2-Dichloroethane-d4	94.5		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
Surr: Toluene-d8	96.4		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
Surr: 4-Bromofluorobenzene	99.8		70-130		%Rec	1	8/30/2021 7:15:00 PM	A80915
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.87	3.1		mg/Kg	1	8/30/2021 7:15:00 PM	B80915
Surr: BFB	101	0	70-130		%Rec	1	8/30/2021 7:15:00 PM	B80915

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB7
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:45:00 AM
Lab ID: 2108A86-006 **Matrix:** AQUEOUS **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Toluene	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Naphthalene	ND	0.50	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Acetone	ND	2.5	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromobenzene	ND	0.28	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromoform	ND	0.31	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Bromomethane	ND	0.85	3.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2-Butanone	ND	2.0	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Carbon disulfide	ND	0.59	10		µg/L	1	8/21/2021 7:09:00 PM	R80700
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chloroethane	ND	0.38	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chloroform	ND	0.13	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Chloromethane	ND	0.41	3.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Dibromomethane	ND	0.31	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R80700
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/21/2021 7:09:00 PM	R80700

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108A86**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB7
Project: Railcar Release Investigation
Collection Date: 8/19/2021 11:45:00 AM
Lab ID: 2108A86-006 **Matrix:** AQUEOUS **Received Date:** 8/19/2021 4:42:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
2-Hexanone	ND	1.8	10		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Styrene	ND	0.14	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/21/2021 7:09:00 PM	R8070(
Surr: 1,2-Dichloroethane-d4	82.4	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R8070(
Surr: 4-Bromofluorobenzene	98.9	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R8070(
Surr: Dibromofluoromethane	83.9	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R8070(
Surr: Toluene-d8	98.7	0	70-130		%Rec	1	8/21/2021 7:09:00 PM	R8070(

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Client:	Hall Environmental Analysis Lab	Work Order:	MBH1038
Address:	4901 Hawkins NE Suite D	Project:	2108A86
	Albuquerque, NM 87109	Reported:	9/13/2021 10:03
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2108A86-001A (RCR-SS10 (0.5))		
Lab/Sample Number:	MBH1038-01	Collect Date:	08/19/21 11:45
Date Received:	08/27/21 12:22	Collected By:	
Matrix:	Soil		

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	75.4	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Chrysene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Pyrene	ND	mg/kg dry	0.00663	0.0133	9/3/21 23:27	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*76.4%*		*40-130*		*9/3/21 23:27*	*MAH*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108A86-002A (RCR-SS10 (1))
Lab/Sample Number: MBH1038-02 Collect Date: 08/19/21 11:50
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	77.9	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Chrysene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Pyrene	ND	mg/kg dry	0.00642	0.0128	9/3/21 22:40	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*68.1%*		*40-130*		*9/3/21 22:40*	*MAH*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108A86-003A (RCR-SS11 (0.5))
Lab/Sample Number: MBH1038-03 Collect Date: 08/19/21 12:00
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	77.2	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo(g,h,i)perylene	0.0740	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[b]fluoranthene	0.0171	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Chrysene	0.0392	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Pyrene	0.0220	mg/kg dry	0.00647	0.0129	9/3/21 23:51	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*68.5%*		*40-130*		*9/3/21 23:51*	*MAH*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108A86-004A (RCR-SS11 (1))
Lab/Sample Number: MBH1038-04 Collect Date: 08/19/21 12:10
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	78.3	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
2-Methylnaphthalene	0.0145	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo(g,h,i)perylene	0.174	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[a]anthracene	0.0177	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[a]pyrene	0.0164	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[b]fluoranthene	0.0220	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Chrysene	0.0557	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Dibenz(a,h)anthracene	0.0250	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Fluoranthene	0.0150	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Phenanthrene	0.0183	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Pyrene	0.0338	mg/kg dry	0.00639	0.0128	9/4/21 0:14	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*69.9%*		*40-130*		*9/4/21 0:14*	*MAH*	*EPA 8270D*	

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Analytical Results Report
(Continued)

Sample Location: 2108A86-005A (RCR-BD7)
Lab/Sample Number: MBH1038-05 Collect Date: 08/19/21 00:00
Date Received: 08/27/21 12:22 Collected By:
Matrix: Soil

Analyte	Result	Units	MDL	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics								
% Solids	75.0	%	0.100	0.100	9/2/21 0:00	MAH	SM 2540 G	
Semivolatiles								
1-Methylnaphthalene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Anthracene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Chrysene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Fluorene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Pyrene	ND	mg/kg dry	0.00667	0.0133	9/3/21 23:04	MAH	EPA 8270D	
Surrogate: Terphenyl-d14	*66.4%*		*40-130*		*9/3/21 23:04*	*MAH*	*EPA 8270D*	

Authorized Signature,



Justin Doty For Todd Taruscio, Laboratory Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MDL	Method Detection Limit
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

This report shall not be reproduced except in full, without the written approval of the laboratory
The results reported related only to the samples indicated.

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Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0035 - SVOC Solid										
Blank (BBI0035-BLK1)				Prepared: 9/1/2021 Analyzed: 9/3/2021						
Naphthalene	ND		0.0100	mg/kg wet						
2-Methylnaphthalene	ND		0.0100	mg/kg wet						
1-Methylnaphthalene	ND		0.0100	mg/kg wet						
Acenaphthylene	ND		0.0100	mg/kg wet						
Acenaphthene	ND		0.0100	mg/kg wet						
Fluorene	ND		0.0100	mg/kg wet						
Phenanthrene	ND		0.0100	mg/kg wet						
Anthracene	ND		0.0100	mg/kg wet						
Fluoranthene	ND		0.0100	mg/kg wet						
Pyrene	ND		0.0100	mg/kg wet						
Benzo[a]anthracene	ND		0.0100	mg/kg wet						
Chrysene	ND		0.0100	mg/kg wet						
Benzo[b]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[k]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[a]pyrene	ND		0.0100	mg/kg wet						
Indeno(1,2,3-cd)pyrene	ND		0.0100	mg/kg wet						
Dibenz(a,h)anthracene	ND		0.0100	mg/kg wet						
Benzo(g,h,i)perylene	ND		0.0100	mg/kg wet						
Surrogate: Terphenyl-d14			*3.44*	*mg/kg wet*	*5.15*		*66.7*	*40-130*		
LCS (BBI0035-BS1)				Prepared: 9/1/2021 Analyzed: 9/3/2021						
Naphthalene	0.694		0.0100	mg/kg wet	1.00		69.4	32-133		
2-Methylnaphthalene	0.804		0.0100	mg/kg wet	1.00		80.4	45-138		
1-Methylnaphthalene	0.782		0.0100	mg/kg wet	1.00		78.2	47-135		
Acenaphthylene	0.904		0.0100	mg/kg wet	1.00		90.4	48-136		
Acenaphthene	0.749		0.0100	mg/kg wet	1.00		74.9	52-127		
Fluorene	0.857		0.0100	mg/kg wet	1.00		85.7	56-126		
Phenanthrene	0.745		0.0100	mg/kg wet	1.00		74.5	69-127		
Anthracene	0.803		0.0100	mg/kg wet	1.00		80.3	32-141		
Fluoranthene	0.758		0.0100	mg/kg wet	1.00		75.8	45-130		
Pyrene	0.739		0.0100	mg/kg wet	1.00		73.9	71-141		
Benzo[a]anthracene	0.737		0.0100	mg/kg wet	1.00		73.7	47-139		
Chrysene	0.740		0.0100	mg/kg wet	1.00		74.0	36-133		
Benzo[b]fluoranthene	0.684		0.0100	mg/kg wet	1.00		68.4	48-177		
Benzo[k]fluoranthene	0.783		0.0100	mg/kg wet	1.00		78.3	47-169		
Benzo[a]pyrene	0.748		0.0100	mg/kg wet	1.00		74.8	51-155		
Indeno(1,2,3-cd)pyrene	0.660		0.0100	mg/kg wet	1.00		66.0	66-166		
Dibenz(a,h)anthracene	0.701		0.0100	mg/kg wet	1.00		70.1	57-155		
Benzo(g,h,i)perylene	0.660		0.0100	mg/kg wet	1.00		66.0	49-165		
Surrogate: Terphenyl-d14			*3.53*	*mg/kg wet*	*5.15*		*68.6*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBI0035 - SVOC Solid (Continued)										
Matrix Spike (BBI0035-MS1)		**Source: MBH1038-02**			Prepared: 9/1/2021 Analyzed: 9/3/2021					
Naphthalene	0.799		0.0128	mg/kg dry	1.28	ND	62.3	30-140		
2-Methylnaphthalene	1.00		0.0128	mg/kg dry	1.28	ND	78.3	30-140		
1-Methylnaphthalene	0.949		0.0128	mg/kg dry	1.28	ND	73.9	30-140		
Acenaphthylene	1.12		0.0128	mg/kg dry	1.28	ND	87.2	30-140		
Acenaphthene	0.913		0.0128	mg/kg dry	1.28	ND	71.1	30-140		
Fluorene	1.07		0.0128	mg/kg dry	1.28	ND	83.5	30-140		
Phenanthrene	0.897		0.0128	mg/kg dry	1.28	ND	69.9	30-140		
Anthracene	0.960		0.0128	mg/kg dry	1.28	ND	74.8	30-140		
Fluoranthene	0.987		0.0128	mg/kg dry	1.28	ND	76.9	30-140		
Pyrene	0.967		0.0128	mg/kg dry	1.28	ND	75.4	30-140		
Benzo[a]anthracene	0.945		0.0128	mg/kg dry	1.28	ND	73.7	30-140		
Chrysene	0.953		0.0128	mg/kg dry	1.28	ND	74.3	30-140		
Benzo[b]fluoranthene	0.890		0.0128	mg/kg dry	1.28	ND	69.4	30-140		
Benzo[k]fluoranthene	0.949		0.0128	mg/kg dry	1.28	ND	74.0	30-140		
Benzo[a]pyrene	0.856		0.0128	mg/kg dry	1.28	ND	66.7	30-140		
Indeno(1,2,3-cd)pyrene	0.840		0.0128	mg/kg dry	1.28	ND	65.5	30-140		
Dibenz(a,h)anthracene	0.888		0.0128	mg/kg dry	1.28	ND	69.2	30-140		
Benzo(g,h,i)perylene	0.846		0.0128	mg/kg dry	1.28	ND	65.9	30-140		
Surrogate: Terphenyl-d14			*4.86*	*mg/kg dry*	*6.61*		*73.5*	*40-130*		
Matrix Spike Dup (BBI0035-MSD1)		**Source: MBH1038-02**			Prepared: 9/1/2021 Analyzed: 9/3/2021					
Naphthalene	0.824		0.0128	mg/kg dry	1.28	ND	64.2	30-140	3.10	50
2-Methylnaphthalene	1.07		0.0128	mg/kg dry	1.28	ND	83.1	30-140	5.98	50
1-Methylnaphthalene	0.984		0.0128	mg/kg dry	1.28	ND	76.6	30-140	3.62	50
Acenaphthylene	1.18		0.0128	mg/kg dry	1.28	ND	91.7	30-140	5.01	50
Acenaphthene	0.975		0.0128	mg/kg dry	1.28	ND	76.0	30-140	6.63	50
Fluorene	1.14		0.0128	mg/kg dry	1.28	ND	89.1	30-140	6.43	50
Phenanthrene	0.950		0.0128	mg/kg dry	1.28	ND	74.0	30-140	5.72	50
Anthracene	0.999		0.0128	mg/kg dry	1.28	ND	77.9	30-140	4.01	50
Fluoranthene	0.976		0.0128	mg/kg dry	1.28	ND	76.0	30-140	1.15	50
Pyrene	0.928		0.0128	mg/kg dry	1.28	ND	72.3	30-140	4.09	50
Benzo[a]anthracene	0.973		0.0128	mg/kg dry	1.28	ND	75.8	30-140	2.85	50
Chrysene	0.997		0.0128	mg/kg dry	1.28	ND	77.7	30-140	4.49	50
Benzo[b]fluoranthene	0.929		0.0128	mg/kg dry	1.28	ND	72.4	30-140	4.23	50
Benzo[k]fluoranthene	1.06		0.0128	mg/kg dry	1.28	ND	82.8	30-140	11.3	50
Benzo[a]pyrene	0.878		0.0128	mg/kg dry	1.28	ND	68.4	30-140	2.52	50
Indeno(1,2,3-cd)pyrene	0.913		0.0128	mg/kg dry	1.28	ND	71.1	30-140	8.28	50
Dibenz(a,h)anthracene	0.944		0.0128	mg/kg dry	1.28	ND	73.5	30-140	6.04	50
Benzo(g,h,i)perylene	0.901		0.0128	mg/kg dry	1.28	ND	70.2	30-140	6.31	50
Surrogate: Terphenyl-d14			*4.70*	*mg/kg dry*	*6.61*		*71.1*	*40-130*		

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Page 8 of 11

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

MBH1038

Due: 09/13/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108A86-001A	RCR-SS10 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 11:45:00 AM	1	J and MDL 8270 SIMS PAH
2	2108A86-002A	RCR-SS10 (1')	4OZGU	MeOH (Soil)	8/19/2021 11:50:00 AM	1	J and MDL 8270 SIMS PAH
3	2108A86-003A	RCR-SS11 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 12:00:00 PM	1	J and MDL 8270 SIMS PAH
4	2108A86-004A	RCR-SS11 (1')	4OZGU	MeOH (Soil)	8/19/2021 12:10:00 PM	1	J and MDL 8270 SIMS PAH
5	2108A86-005A	RCR-BD7	4OZGU	MeOH (Soil)	8/19/2021	1	J and MDL 8270 SIMS PAH

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/25/2021	Time: 9:40 AM	Received By:	Date: 8/26/2021	Time: 1222
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard X RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

Anatek Labs, Inc.

Sample Receipt and Preservation Form

MBH1038

Due: 09/13/21

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 4.7 Cooler Temp Corrected (°C): — Thermometer Used: IR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 5				

Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

none

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8270 PAH - 9402 x5

Received/Inspected By: CA Date/Time: 08/27/21 1222

Form F19.00 - Eff 8 Feb 2019

Page 1 of 1

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Page 10 of 11

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

MBH1038

Due: 09/13/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**		PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**	
ADDRESS: **1282 Alturas Dr**			ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP: **Moscow, ID 83843**					

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108A86-001A	RCR-SS10 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 11:45:00 AM	1	J and MDL 8270 SIMS PAH
2	2108A86-002A	RCR-SS10 (1')	4OZGU	MeOH (Soil)	8/19/2021 11:50:00 AM	1	J and MDL 8270 SIMS PAH
3	2108A86-003A	RCR-SS11 (0.5')	4OZGU	MeOH (Soil)	8/19/2021 12:00:00 PM	1	J and MDL 8270 SIMS PAH
4	2108A86-004A	RCR-SS11 (1')	4OZGU	MeOH (Soil)	8/19/2021 12:10:00 PM	1	J and MDL 8270 SIMS PAH
5	2108A86-005A	RCR-BD7	4OZGU	MeOH (Soil)	8/19/2021	1	J and MDL 8270 SIMS PAH

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/25/2021**	Time: **9:40 AM**	Received By:	Date: 8/27/2021	Time: 1222
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard X RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

Anatek Labs, Inc.

Sample Receipt and Preservation Form

MBH1038

Due: 09/13/21

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 4.7 Cooler Temp Corrected (°C): — Thermometer Used: IR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 5				

Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

none

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8270 PAH - 5402 x5

Received/Inspected By: CA Date/Time: 08/27/21 1222

Form F19.00 - Eff 8 Feb 2019

Page 1 of 1

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62196** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856182** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.20								
Cadmium	ND	0.20								
Lead	ND	0.20								
Selenium	ND	0.20								
Silver	ND	0.20								

Sample ID: **MSLLLCS-62196** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856183** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.11	0.20	0.1000	0	105	70	130			J

Sample ID: **MSLCS-62196** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856184** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	4.6	0.20	5.000	0	92.4	80	120			
Cadmium	4.4	0.20	5.000	0	87.8	80	120			
Lead	4.9	0.20	5.000	0	98.2	80	120			
Selenium	4.6	0.20	5.000	0	92.5	80	120			
Silver	2.4	0.20	2.500	0	97.5	80	120			

Sample ID: **2108A86-001AMSLL** SampType: **MS** TestCode: **EPA Method 6020: Metals**
Client ID: **RCR-SS10 (0.5')** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856188** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	5.2	0.49	4.901	1.181	81.6	70	130			
Cadmium	4.3	0.49	4.901	0	88.3	70	130			
Selenium	5.9	0.49	4.901	1.724	84.3	70	130			
Silver	2.2	0.49	2.450	0	90.9	70	130			

Sample ID: **2108A86-001AMSDL** SampType: **MSD** TestCode: **EPA Method 6020: Metals**
Client ID: **RCR-SS10 (0.5')** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856189** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	5.5	0.51	5.074	1.181	85.8	70	130	6.60	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108A86-001AMSDL** SampType: **MSD** TestCode: **EPA Method 6020: Metals**
Client ID: **RCR-SS10 (0.5')** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856189** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	4.4	0.51	5.074	0	86.3	70	130	1.20	20	
Selenium	5.9	0.51	5.074	1.724	82.9	70	130	1.23	20	
Silver	2.3	0.51	2.537	0	89.6	70	130	2.06	20	

Sample ID: **MSLLLCS-62196** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2856215** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.10	0.20	0.1000	0	102	70	130			J
Cadmium	0.081	0.20	0.1000	0	81.1	70	130			J
Selenium	0.10	0.20	0.1000	0	105	70	130			J
Silver	0.11	0.20	0.1000	0	109	70	130			J

Sample ID: **MB-62196** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2858405** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.20								
Chromium	ND	0.20								

Sample ID: **MSLCS-62196** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2858407** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	5.2	0.20	5.000	0	103	80	120			
Chromium	4.7	0.20	5.000	0	93.6	80	120			

Sample ID: **MSLLLCS-62196** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62196** RunNo: **80923**
Prep Date: **8/25/2021** Analysis Date: **8/31/2021** SeqNo: **2858408** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.14	0.20	0.1000	0	140	70	130			JS
Chromium	0.14	0.20	0.1000	0	140	70	130			JS

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62104** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **62104** RunNo: **80715**
Prep Date: **8/20/2021** Analysis Date: **8/21/2021** SeqNo: **2847435** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		116	70	130			

Sample ID: **LCS-62104** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **62104** RunNo: **80715**
Prep Date: **8/20/2021** Analysis Date: **8/21/2021** SeqNo: **2847438** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	94.6	68.9	141			
Surr: DNOP	5.0		5.000		100	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62159** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851925** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	70	130			
Toluene	1.0	0.050	1.000	0	105	70	130			
Chlorobenzene	0.99	0.050	1.000	0	99.0	70	130			
1,1-Dichloroethene	0.98	0.050	1.000	0	98.3	70	130			
Trichloroethene (TCE)	0.97	0.050	1.000	0	97.4	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.56		0.5000		111	70	130			
Surr: Toluene-d8	0.50		0.5000		99.8	70	130			
Surr: 4-Bromofluorobenzene	0.53		0.5000		106	70	130			

Sample ID: **mb-62159** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62159**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **62159**	RunNo: **80831**
Prep Date: **8/24/2021**	Analysis Date: **8/25/2021**	SeqNo: **2851926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62159** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62159** RunNo: **80831**
Prep Date: **8/24/2021** Analysis Date: **8/25/2021** SeqNo: **2851926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.52		0.5000		103	70	130			
Surr: 1,2-Dichloroethane-d4	0.57		0.5000		113	70	130			
Surr: Toluene-d8	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		108	70	130			

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855839** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Chlorobenzene	1.1	0.050	1.000	0	106	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	102	70	130			
Trichloroethene (TCE)	0.93	0.050	1.000	0	92.6	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.3	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		102	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80915**	RunNo: **80915**
Prep Date:	Analysis Date: **8/30/2021**	SeqNo: **2855841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.51		0.5000		101	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.3	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.2	70	130			

Sample ID: **2108a86-003ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SS11 (0.5')** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855873** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.57	0.013	0.5216	0	109	70	130			
Toluene	0.54	0.026	0.5216	0	103	70	130			
Chlorobenzene	0.54	0.026	0.5216	0	104	70	130			
1,1-Dichloroethene	0.55	0.026	0.5216	0	105	49.9	132			
Trichloroethene (TCE)	0.52	0.026	0.5216	0	99.8	52.9	126			
Surr: Dibromofluoromethane	0.27		0.2608		102	70	130			
Surr: 1,2-Dichloroethane-d4	0.24		0.2608		92.5	70	130			
Surr: Toluene-d8	0.27		0.2608		103	70	130			
Surr: 4-Bromofluorobenzene	0.24		0.2608		92.9	70	130			

Sample ID: **2108a86-003amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SS11 (0.5')** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855874** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.53	0.013	0.5216	0	101	70	130	7.09	20	
Toluene	0.54	0.026	0.5216	0	104	70	130	0.343	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108a86-003amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SS11 (0.5')** Batch ID: **A80915** RunNo: **80915**
Prep Date: Analysis Date: **8/30/2021** SeqNo: **2855874** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	0.54	0.026	0.5216	0	103	70	130	1.12	20	
1,1-Dichloroethene	0.53	0.026	0.5216	0	101	49.9	132	3.34	20	
Trichloroethene (TCE)	0.46	0.026	0.5216	0	88.8	52.9	126	11.6	20	
Surr: Dibromofluoromethane	0.25		0.2608		96.9	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.23		0.2608		90.0	70	130	0	0	
Surr: Toluene-d8	0.27		0.2608		105	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.25		0.2608		95.3	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng 8260 lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R80700** RunNo: **80700**
Prep Date: Analysis Date: **8/21/2021** SeqNo: **2848447** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.6	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	82.9	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	83.2	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		82.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	8.1		10.00		81.4	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R80700** RunNo: **80700**
Prep Date: Analysis Date: **8/21/2021** SeqNo: **2848599** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80700**	RunNo: **80700**
Prep Date:	Analysis Date: **8/21/2021**	SeqNo: **2848599** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80700**	RunNo: **80700**
Prep Date:	Analysis Date: **8/21/2021**	SeqNo: **2848599** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.2		10.00		82.4	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	8.2		10.00		81.7	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62157** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62157** RunNo: **80881**
Prep Date: **8/24/2021** Analysis Date: **8/27/2021** SeqNo: **2854276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	1.0								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62157** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62157** RunNo: **80881**
Prep Date: **8/24/2021** Analysis Date: **8/27/2021** SeqNo: **2854276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.7		3.330		80.6	20.3	74.1			S
Surr: Phenol-d5	3.5		3.330		104	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	2.9		3.330		86.4	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		77.6	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		84.6	21.5	90.1			
Surr: 4-Terphenyl-d14	1.7		1.670		103	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62157** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62157** RunNo: **80881**
Prep Date: **8/24/2021** Analysis Date: **8/27/2021** SeqNo: **2854277** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	86.4	22.9	109			
4-Chloro-3-methylphenol	2.8	0.50	3.330	0	85.4	24.2	109			
2-Chlorophenol	2.5	0.20	3.330	0	75.3	18.8	103			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	66.1	18.8	89.5			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	72.1	20.2	94.5			
N-Nitrosodi-n-propylamine	1.3	0.20	1.670	0	80.7	19.2	96.9			
4-Nitrophenol	3.3	0.25	3.330	0	98.0	25	118			
Pentachlorophenol	2.7	0.40	3.330	0	80.1	24.1	107			
Phenol	2.7	0.20	3.330	0	80.9	17.8	112			
Pyrene	1.6	0.20	1.670	0	94.7	25.9	125			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	75.8	18.5	92.8			
Surr: 2-Fluorophenol	2.3		3.330		68.6	20.3	74.1			
Surr: Phenol-d5	2.7		3.330		81.1	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.9		3.330		86.4	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		74.8	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		81.3	21.5	90.1			
Surr: 4-Terphenyl-d14	1.6		1.670		95.1	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62297** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62297** RunNo: **80969**
Prep Date: **8/31/2021** Analysis Date: **9/1/2021** SeqNo: **2857597** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-62297** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62297** RunNo: **80969**
Prep Date: **8/31/2021** Analysis Date: **9/1/2021** SeqNo: **2857598** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0041	0.033	0.006660	0	61.7	70	130			JS

Sample ID: **LCS-62297** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62297** RunNo: **80969**
Prep Date: **8/31/2021** Analysis Date: **9/1/2021** SeqNo: **2857599** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	105	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62159**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **62159**	RunNo: **80831**							
Prep Date: **8/24/2021**	Analysis Date: **8/25/2021**	SeqNo: **2851951**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	70	130			
Surr: BFB	480		500.0		96.5	70	130			

Sample ID: **mb-62159**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **62159**	RunNo: **80831**							
Prep Date: **8/24/2021**	Analysis Date: **8/25/2021**	SeqNo: **2851952**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	1.5	5.0								J
Surr: BFB	500		500.0		99.8	70	130			

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **B80915**	RunNo: **80915**							
Prep Date:	Analysis Date: **8/30/2021**	SeqNo: **2855892**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	90.0	70	130			
Surr: BFB	510		500.0		101	70	130			

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **B80915**	RunNo: **80915**							
Prep Date:	Analysis Date: **8/30/2021**	SeqNo: **2855893**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	500		500.0		99.3	70	130			

Sample ID: **2108a86-002ams**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **RCR-SS10 (1')**	Batch ID: **B80915**	RunNo: **80915**							
Prep Date:	Analysis Date: **8/30/2021**	SeqNo: **2855895**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	3.0	14.78	0	89.3	64.4	124			
Surr: BFB	290		295.7		97.7	70	130			

Sample ID: **2108a86-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **RCR-SS10 (1')**	Batch ID: **B80915**	RunNo: **80915**							
Prep Date:	Analysis Date: **8/30/2021**	SeqNo: **2855896**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108A86**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108a86-002amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **RCR-SS10 (1')**	Batch ID: **B80915**	RunNo: **80915**							
Prep Date:	Analysis Date: **8/30/2021**	SeqNo: **2855896**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	3.0	14.78	0	86.9	64.4	124	2.68	20	
Surr: BFB	310		295.7		105	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Marathon** Work Order Number: **2108A86** RcptNo: **1**

Received By: **Kasandra Payan** **8/19/2021 4:42:00 PM** KPC

Completed By: **Desiree Dominguez** **8/19/2021 4:52:49 PM** DD

Reviewed By: JR 8/19/21

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☑ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

# of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: KPC 8/19/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:
By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.2	Good				

Released to Imaging: 8/16/2024 3:11:43 PM
Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client:	Marathon Gallup Refinery
Mailing Address:	92 Giant Crossing Road Jamesto NM,87301
Phone #:	808-640-1823
email or Fax#:	
QA/QC Package:	X Standard ☐ Level 4 (Full Validation)
Accreditation:	☐ Az Compliance ☐ NELAC ☐ Other
X EDD (Type)	

X Standard ☐ **Rush**

Project Name:	Railcar Release Investigation
Project #:	697-089-001
Project Manager:	Emily Conkling/Brian McLoughlin
Sampler:	
On Ice:	☑ Yes ☐ No
# of Coolers:	1
Cooler Temp(including CF):	5.4-0.2=5.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108A86	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM	8260-VOCs
8/19/2021	11:45	Soil	RCR-SS10 (0.5')	3		-001	x	x	x	x	x	x	
8/19/2021	11:50	Soil	RCR-SS10 (1")	3		-002	x	x	x	x	x	x	
8/19/2021	12:00	Soil	RCR-SS11 (0.5')	3		-003	x	x	x	x	x	x	
8/19/2021	12:10	Soil	RCR-SS11 (1')	3		-004	x	x	x	x	x	x	
8/19/2021	-	Soil	RCR-BD7	3		-005	x	x	x	x	x	x	
8/19/2021	11:45	Soil	RCR-EB7	3		-006							x

Date	Time	Relinquished by	Received by	Via	Date	Time
8/19/21	14:00	Brian McLoughlin		Courier	8/19/21	16:42
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP (VOC, Metals)

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

September 13, 2021

Brian McLoughlin

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL: (505) 722-3833
FAX

RE: Railcar Release Investigation OrderNo.: 2108721

Dear Brian McLoughlin:

Hall Environmental Analysis Laboratory received 65 sample(s) on 8/13/2021 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB1 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	37	4.7	9.4		mg/Kg	1	8/20/2021 2:47:02 PM	61999
Motor Oil Range Organics (MRO)	160	47	47		mg/Kg	1	8/20/2021 2:47:02 PM	61999
Surr: DNOP	117	0	70-130		%Rec	1	8/20/2021 2:47:02 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.4	1.0	2.0	J	mg/Kg	20	8/25/2021 3:43:21 PM	62061
Barium	450	10	20		mg/Kg	200	8/25/2021 3:38:47 PM	62061
Cadmium	ND	1.0	2.0		mg/Kg	20	8/25/2021 3:43:21 PM	62061
Chromium	36	0.50	1.0		mg/Kg	10	8/27/2021 12:34:59 PM	62061
Lead	24	0.50	1.0		mg/Kg	10	8/27/2021 12:34:59 PM	62061
Selenium	1.3	1.2	2.0	J	mg/Kg	20	8/25/2021 3:43:21 PM	62061
Silver	ND	1.0	2.0		mg/Kg	20	8/25/2021 3:43:21 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.21	0.0026	0.032		mg/Kg	1	8/25/2021 10:18:02 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzoic acid	ND	1.2	9.6	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Chloroaniline	ND	0.93	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Naphthalene	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 12:42:05 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 12:42:05 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0085	0.022		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Toluene	0.011	0.0057	0.044	J	mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Ethylbenzene	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.025	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,4-Trimethylbenzene	0.014	0.0062	0.044	J	mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,3,5-Trimethylbenzene	ND	0.0099	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.017	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Naphthalene	ND	0.016	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1-Methylnaphthalene	ND	0.050	0.18		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Methylnaphthalene	ND	0.041	0.18		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Acetone	ND	0.14	0.66		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromobenzene	ND	0.0093	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromodichloromethane	ND	0.0056	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromoform	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Bromomethane	ND	0.073	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Butanone	ND	0.19	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Carbon disulfide	ND	0.018	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Carbon tetrachloride	ND	0.0049	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chlorobenzene	ND	0.0079	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chloroethane	ND	0.016	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chloroform	ND	0.0062	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Chloromethane	ND	0.015	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Chlorotoluene	ND	0.0059	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB1 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.023	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
cis-1,2-DCE	ND	0.022	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
cis-1,3-Dichloropropene	ND	0.0065	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.019	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Dibromochloromethane	ND	0.0070	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Dibromomethane	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dichlorobenzene	ND	0.0091	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,3-Dichlorobenzene	ND	0.0083	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,4-Dichlorobenzene	ND	0.012	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Dichlorodifluoromethane	ND	0.017	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1-Dichloroethane	ND	0.013	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1-Dichloroethene	ND	0.0094	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2-Dichloropropane	ND	0.0086	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,3-Dichloropropane	ND	0.0097	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2,2-Dichloropropane	ND	0.0063	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1-Dichloropropene	ND	0.0053	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Hexachlorobutadiene	ND	0.030	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
2-Hexanone	ND	0.019	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Isopropylbenzene	ND	0.0082	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
4-Isopropyltoluene	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
4-Methyl-2-pentanone	ND	0.051	0.44		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Methylene chloride	ND	0.032	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
n-Butylbenzene	ND	0.012	0.13		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
n-Propylbenzene	ND	0.0071	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
sec-Butylbenzene	ND	0.036	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Styrene	ND	0.0060	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
tert-Butylbenzene	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0065	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.014	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Tetrachloroethene (PCE)	ND	0.012	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
trans-1,2-DCE	ND	0.0085	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
trans-1,3-Dichloropropene	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0068	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,4-Trichlorobenzene	ND	0.015	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,1-Trichloroethane	ND	0.0097	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,1,2-Trichloroethane	ND	0.011	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Trichloroethene (TCE)	ND	0.0086	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Trichlorofluoromethane	ND	0.010	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
1,2,3-Trichloropropane	ND	0.019	0.088		mg/Kg	1	8/16/2021 2:48:51 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:00:00 AM
Lab ID: 2108721-001 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0084	0.044		mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Xylenes, Total	0.039	0.023	0.088	J	mg/Kg	1	8/16/2021 2:48:51 PM	A80534
Surr: Dibromofluoromethane	112		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
Surr: Toluene-d8	97.5		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
Surr: 4-Bromofluorobenzene	95.1		70-130		%Rec	1	8/16/2021 2:48:51 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.2	4.4		mg/Kg	1	8/16/2021 2:48:51 PM	B80534
Surr: BFB	98.1	0	70-130		%Rec	1	8/16/2021 2:48:51 PM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	3300	46	93		mg/Kg	10	8/19/2021 3:46:23 AM	61999
Motor Oil Range Organics (MRO)	1200	470	470		mg/Kg	10	8/19/2021 3:46:23 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	10	8/19/2021 3:46:23 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	3.7	0.25	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
Barium	320	9.8	20		mg/Kg	200	8/25/2021 4:01:41 PM	62061
Cadmium	ND	0.25	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
Chromium	60	0.98	2.0		mg/Kg	20	8/27/2021 12:39:32 PM	62061
Lead	37	0.49	0.98		mg/Kg	10	8/25/2021 4:10:51 PM	62061
Selenium	0.73	0.28	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
Silver	ND	0.25	0.49		mg/Kg	5	8/24/2021 5:52:11 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.035	0.012	0.16	J	mg/Kg	5	8/25/2021 1:04:03 PM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Acenaphthylene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Aniline	ND	17	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Anthracene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Azobenzene	ND	24	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benz(a)anthracene	ND	16	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(a)pyrene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(b)fluoranthene	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(g,h,i)perylene	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzo(k)fluoranthene	ND	18	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzoic acid	ND	31	250	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Benzyl alcohol	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-chloroethoxy)methane	ND	19	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-chloroethyl)ether	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-chloroisopropyl)ether	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Bis(2-ethylhexyl)phthalate	ND	53	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Bromophenyl phenyl ether	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Butyl benzyl phthalate	ND	15	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Carbazole	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Chloro-3-methylphenol	ND	21	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Chloronaphthalene	ND	23	61	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Chlorophenol	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Chlorophenyl phenyl ether	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Di-n-butyl phthalate	ND	68	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Di-n-octyl phthalate	ND	32	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Dibenz(a,h)anthracene	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Dibenzofuran	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,2-Dichlorobenzene	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,3-Dichlorobenzene	ND	17	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,4-Dichlorobenzene	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
3,3´-Dichlorobenzidine	ND	37	61	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Diethyl phthalate	ND	80	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Dimethyl phthalate	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dichlorophenol	ND	20	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dimethylphenol	ND	17	74	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4,6-Dinitro-2-methylphenol	ND	21	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dinitrophenol	ND	12	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4-Dinitrotoluene	ND	30	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Fluoranthene	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Fluorene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachlorobenzene	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachlorobutadiene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachlorocyclopentadiene	ND	28	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Hexachloroethane	ND	22	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Indeno(1,2,3-cd)pyrene	ND	28	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Isophorone	ND	20	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1-Methylnaphthalene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Methylnaphthalene	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Methylphenol	ND	21	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
3+4-Methylphenol	ND	20	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
N-Nitrosodi-n-propylamine	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
N-Nitrosodimethylamine	ND	36	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
N-Nitrosodiphenylamine	ND	26	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Naphthalene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Nitroaniline	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
3-Nitroaniline	ND	29	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Nitroaniline	ND	31	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Nitrobenzene	ND	20	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2-Nitrophenol	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
4-Nitrophenol	ND	20	61	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Phenanthrene	ND	25	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Phenol	ND	19	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Pyrene	ND	19	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Pyridine	ND	39	98	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
1,2,4-Trichlorobenzene	ND	23	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4,5-Trichlorophenol	ND	16	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
2,4,6-Trichlorophenol	ND	21	49	D	mg/Kg	10	8/30/2021 1:23:20 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 1:23:20 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.011	0.0074	0.019	J	mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Toluene	ND	0.0050	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Ethylbenzene	0.045	0.0094	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.022	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,4-Trimethylbenzene	0.023	0.0055	0.039	J	mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,3,5-Trimethylbenzene	ND	0.0087	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.0088	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.015	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Naphthalene	ND	0.014	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1-Methylnaphthalene	0.39	0.044	0.15		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Methylnaphthalene	ND	0.036	0.15		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Acetone	ND	0.13	0.58		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromobenzene	ND	0.0082	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromodichloromethane	ND	0.0049	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromoform	ND	0.0093	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Bromomethane	ND	0.064	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Butanone	ND	0.17	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Carbon disulfide	ND	0.016	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Carbon tetrachloride	ND	0.0043	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chlorobenzene	ND	0.0069	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chloroethane	ND	0.014	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chloroform	ND	0.0055	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Chlorotoluene	ND	0.0052	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
cis-1,2-DCE	ND	0.019	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
cis-1,3-Dichloropropene	ND	0.0057	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.017	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Dibromochloromethane	ND	0.0062	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Dibromomethane	ND	0.0090	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dichlorobenzene	ND	0.0080	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,3-Dichlorobenzene	ND	0.0073	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,4-Dichlorobenzene	ND	0.010	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Dichlorodifluoromethane	ND	0.015	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1-Dichloroethane	ND	0.011	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1-Dichloroethene	ND	0.0083	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2-Dichloropropane	ND	0.0075	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,3-Dichloropropane	ND	0.0085	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2,2-Dichloropropane	ND	0.0055	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1-Dichloropropene	ND	0.0047	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Hexachlorobutadiene	ND	0.026	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
2-Hexanone	ND	0.017	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Isopropylbenzene	ND	0.0072	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
4-Isopropyltoluene	ND	0.010	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
4-Methyl-2-pentanone	ND	0.045	0.39		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Methylene chloride	ND	0.028	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
n-Butylbenzene	ND	0.010	0.12		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
n-Propylbenzene	0.028	0.0062	0.039	J	mg/Kg	1	8/16/2021 4:14:49 PM	A80534
sec-Butylbenzene	ND	0.032	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Styrene	ND	0.0053	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
tert-Butylbenzene	ND	0.0089	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0057	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.012	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Tetrachloroethene (PCE)	ND	0.011	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
trans-1,2-DCE	ND	0.0075	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
trans-1,3-Dichloropropene	ND	0.0091	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0060	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,4-Trichlorobenzene	ND	0.013	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,1-Trichloroethane	ND	0.0085	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,1,2-Trichloroethane	ND	0.0097	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Trichloroethene (TCE)	ND	0.0076	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Trichlorofluoromethane	ND	0.0088	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
1,2,3-Trichloropropane	ND	0.016	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:05:00 AM
Lab ID: 2108721-002 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0074	0.039		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Xylenes, Total	ND	0.020	0.077		mg/Kg	1	8/16/2021 4:14:49 PM	A80534
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
Surr: 1,2-Dichloroethane-d4	106		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
Surr: Toluene-d8	100		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
Surr: 4-Bromofluorobenzene	93.0		70-130		%Rec	1	8/16/2021 4:14:49 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	2.2	1.1	3.9	J	mg/Kg	1	8/16/2021 4:14:49 PM	B80534
Surr: BFB	99.4	0	70-130		%Rec	1	8/16/2021 4:14:49 PM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	770	4.7	9.5		mg/Kg	1	8/17/2021 6:52:08 PM	61999
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 6:52:08 PM	61999
Surr: DNOP	118	0	70-130		%Rec	1	8/17/2021 6:52:08 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.79	0.24	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
Barium	410	4.8	9.6		mg/Kg	100	8/25/2021 4:15:24 PM	62061
Cadmium	ND	0.24	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
Chromium	13	0.24	0.48		mg/Kg	5	8/27/2021 12:44:05 PM	62061
Lead	9.3	0.24	0.48		mg/Kg	5	8/27/2021 12:44:05 PM	62061
Selenium	0.70	0.28	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
Silver	ND	0.24	0.48		mg/Kg	5	8/24/2021 5:57:34 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0054	0.0028	0.035	J	mg/Kg	1	8/25/2021 10:30:52 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benz(a)anthracene	ND	0.63	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(a)pyrene	ND	0.92	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzoic acid	ND	1.2	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Benzyl alcohol	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Carbazole	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Chlorophenyl phenyl ether	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,2-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,4-Dichlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Dimethyl phthalate	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Fluoranthene	ND	0.79	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Fluorene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachlorobenzene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1-Methylnaphthalene	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Naphthalene	ND	0.92	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Nitroaniline	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2-Nitrophenol	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Pyrene	ND	0.74	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
2,4,6-Trichlorophenol	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 2:57:23 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/23/2021 2:57:23 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.023	0.0095	0.025	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Toluene	0.011	0.0063	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Ethylbenzene	0.021	0.012	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Methyl tert-butyl ether (MTBE)	ND	0.028	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,4-Trimethylbenzene	0.072	0.0070	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Naphthalene	ND	0.018	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1-Methylnaphthalene	1.9	0.056	0.20		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Acetone	ND	0.16	0.74		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromobenzene	ND	0.010	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromodichloromethane	0.012	0.0063	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromoform	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Bromomethane	ND	0.082	0.15		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Butanone	ND	0.21	0.49		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Carbon disulfide	ND	0.020	0.49		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Carbon tetrachloride	ND	0.0055	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chlorobenzene	ND	0.0089	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chloroethane	ND	0.018	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chloroform	0.011	0.0070	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Chlorotoluene	ND	0.0066	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.026	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
cis-1,2-DCE	ND	0.024	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
cis-1,3-Dichloropropene	ND	0.0073	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Dibromochloromethane	ND	0.0079	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Dibromomethane	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dichlorobenzene	ND	0.010	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,3-Dichlorobenzene	ND	0.0093	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,4-Dichlorobenzene	ND	0.013	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Dichlorodifluoromethane	ND	0.019	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1-Dichloroethane	ND	0.014	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1-Dichloroethene	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2-Dichloropropane	ND	0.0096	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,3-Dichloropropane	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2,2-Dichloropropane	ND	0.0070	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1-Dichloropropene	ND	0.0059	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Hexachlorobutadiene	ND	0.034	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
2-Hexanone	0.36	0.022	0.49	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
Isopropylbenzene	ND	0.0091	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
4-Isopropyltoluene	0.021	0.013	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
4-Methyl-2-pentanone	ND	0.057	0.49		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/23/2021 8:32:29 PM	62009
n-Butylbenzene	0.021	0.013	0.15	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
n-Propylbenzene	0.035	0.0080	0.049	J	mg/Kg	1	8/23/2021 8:32:29 PM	62009
sec-Butylbenzene	ND	0.041	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Styrene	ND	0.0067	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
tert-Butylbenzene	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,1,2-Tetrachloroethane	ND	0.0072	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,2,2-Tetrachloroethane	ND	0.016	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Tetrachloroethene (PCE)	ND	0.014	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
trans-1,2-DCE	ND	0.0095	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
trans-1,3-Dichloropropene	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,3-Trichlorobenzene	ND	0.0076	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,1-Trichloroethane	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,1,2-Trichloroethane	ND	0.012	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Trichloroethene (TCE)	ND	0.0097	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Trichlorofluoromethane	ND	0.011	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
1,2,3-Trichloropropane	ND	0.021	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:10:00 AM
Lab ID: 2108721-003 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0094	0.049		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Xylenes, Total	ND	0.026	0.099		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Surr: Dibromofluoromethane	91.3		70-130		%Rec	1	8/23/2021 8:32:29 PM	62009
Surr: 1,2-Dichloroethane-d4	96.8		70-130		%Rec	1	8/23/2021 8:32:29 PM	62009
Surr: Toluene-d8	101		70-130		%Rec	1	8/23/2021 8:32:29 PM	62009
Surr: 4-Bromofluorobenzene	143		70-130	S	%Rec	1	8/23/2021 8:32:29 PM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	9.6	1.4	4.9		mg/Kg	1	8/23/2021 8:32:29 PM	62009
Surr: BFB	127	0	70-130		%Rec	1	8/23/2021 8:32:29 PM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	470	4.8	9.8		mg/Kg	1	8/18/2021 3:05:22 PM	61999
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/18/2021 3:05:22 PM	61999
Surr: DNOP	118	0	70-130		%Rec	1	8/18/2021 3:05:22 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.65	0.24	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
Barium	340	4.8	9.6		mg/Kg	100	8/25/2021 4:38:10 PM	62061
Cadmium	ND	0.24	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
Chromium	17	0.24	0.48		mg/Kg	5	8/27/2021 12:48:39 PM	62061
Lead	12	0.24	0.48		mg/Kg	5	8/27/2021 12:48:39 PM	62061
Selenium	0.84	0.28	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
Silver	ND	0.24	0.48		mg/Kg	5	8/24/2021 6:02:57 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0041	0.0028	0.036	J	mg/Kg	1	8/25/2021 10:33:01 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Acenaphthylene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Aniline	ND	1.4	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Anthracene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Azobenzene	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benz(a)anthracene	ND	1.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(a)pyrene	ND	1.9	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(b)fluoranthene	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(g,h,i)perylene	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzo(k)fluoranthene	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzoic acid	ND	2.5	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Benzyl alcohol	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-chloroethoxy)methane	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-chloroethyl)ether	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-chloroisopropyl)ether	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Bis(2-ethylhexyl)phthalate	ND	4.3	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Bromophenyl phenyl ether	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Butyl benzyl phthalate	ND	1.2	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Carbazole	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Chloro-3-methylphenol	ND	1.7	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Chloroaniline	ND	1.9	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Chloronaphthalene	ND	1.9	5.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Chlorophenol	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Chlorophenyl phenyl ether	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Di-n-butyl phthalate	ND	5.5	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Di-n-octyl phthalate	ND	2.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Dibenz(a,h)anthracene	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Dibenzofuran	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,2-Dichlorobenzene	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,3-Dichlorobenzene	ND	1.4	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,4-Dichlorobenzene	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
3,3´-Dichlorobenzidine	ND	3.0	5.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Diethyl phthalate	ND	6.5	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Dimethyl phthalate	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dichlorophenol	ND	1.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dimethylphenol	ND	1.4	6.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4,6-Dinitro-2-methylphenol	ND	1.7	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dinitrophenol	ND	1.0	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4-Dinitrotoluene	ND	2.4	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,6-Dinitrotoluene	ND	2.0	9.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Fluoranthene	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Fluorene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachlorobenzene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachlorobutadiene	ND	1.9	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachlorocyclopentadiene	ND	2.2	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Hexachloroethane	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Indeno(1,2,3-cd)pyrene	ND	2.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Isophorone	ND	1.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1-Methylnaphthalene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Methylnaphthalene	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Methylphenol	ND	1.7	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
3+4-Methylphenol	ND	1.6	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
N-Nitrosodi-n-propylamine	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
N-Nitrosodimethylamine	ND	3.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
N-Nitrosodiphenylamine	ND	2.1	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Naphthalene	ND	1.9	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Nitroaniline	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
3-Nitroaniline	ND	2.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Nitroaniline	ND	2.5	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Nitrobenzene	ND	1.6	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2-Nitrophenol	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
4-Nitrophenol	ND	1.6	5.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	1.7	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Phenanthrene	ND	2.0	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Phenol	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Pyrene	ND	1.5	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Pyridine	ND	3.2	7.9	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
1,2,4-Trichlorobenzene	ND	1.8	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4,5-Trichlorophenol	ND	1.3	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
2,4,6-Trichlorophenol	ND	1.7	4.0	D	mg/Kg	20	8/23/2021 3:39:05 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/23/2021 3:39:05 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.10	0.0091	0.024		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Toluene	0.057	0.0061	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Ethylbenzene	0.032	0.011	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Methyl tert-butyl ether (MTBE)	ND	0.027	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,4-Trimethylbenzene	0.10	0.0066	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Naphthalene	ND	0.017	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1-Methylnaphthalene	0.61	0.054	0.19		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Methylnaphthalene	0.054	0.043	0.19	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Acetone	ND	0.15	0.71		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromobenzene	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromodichloromethane	0.026	0.0060	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromoform	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Bromomethane	ND	0.078	0.14		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Butanone	ND	0.20	0.47		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Carbon disulfide	ND	0.019	0.47		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Carbon tetrachloride	ND	0.0052	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chlorobenzene	ND	0.0085	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chloroethane	ND	0.018	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chloroform	0.028	0.0067	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Chloromethane	ND	0.016	0.14		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Chlorotoluene	ND	0.0063	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.025	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
cis-1,2-DCE	ND	0.023	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
cis-1,3-Dichloropropene	ND	0.0070	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dibromo-3-chloropropane	ND	0.020	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Dibromochloromethane	ND	0.0075	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Dibromomethane	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dichlorobenzene	ND	0.0098	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,3-Dichlorobenzene	ND	0.0089	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,4-Dichlorobenzene	ND	0.013	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Dichlorodifluoromethane	ND	0.018	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1-Dichloroethane	ND	0.014	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1-Dichloroethene	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2-Dichloropropane	ND	0.0092	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,3-Dichloropropane	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2,2-Dichloropropane	ND	0.0067	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1-Dichloropropene	ND	0.0057	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Hexachlorobutadiene	ND	0.032	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
2-Hexanone	0.19	0.021	0.47	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Isopropylbenzene	ND	0.0087	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
4-Isopropyltoluene	0.021	0.012	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
4-Methyl-2-pentanone	0.24	0.055	0.47	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Methylene chloride	ND	0.034	0.14		mg/Kg	1	8/23/2021 10:47:35 PM	62009
n-Butylbenzene	0.017	0.013	0.14	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
n-Propylbenzene	0.021	0.0076	0.047	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
sec-Butylbenzene	ND	0.039	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Styrene	ND	0.0064	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
tert-Butylbenzene	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,1,2-Tetrachloroethane	ND	0.0069	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,2,2-Tetrachloroethane	ND	0.015	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Tetrachloroethene (PCE)	ND	0.013	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
trans-1,2-DCE	ND	0.0091	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
trans-1,3-Dichloropropene	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,3-Trichlorobenzene	ND	0.0073	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,4-Trichlorobenzene	ND	0.016	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,1-Trichloroethane	ND	0.010	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,1,2-Trichloroethane	ND	0.012	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Trichloroethene (TCE)	ND	0.0092	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Trichlorofluoromethane	ND	0.011	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
1,2,3-Trichloropropane	ND	0.020	0.094		mg/Kg	1	8/23/2021 10:47:35 PM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:12:00 AM
Lab ID: 2108721-004 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0090	0.047		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Xylenes, Total	0.052	0.025	0.094	J	mg/Kg	1	8/23/2021 10:47:35 PM	62009
Surr: Dibromofluoromethane	88.4		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
Surr: 1,2-Dichloroethane-d4	95.4		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
Surr: Toluene-d8	106		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
Surr: 4-Bromofluorobenzene	127		70-130		%Rec	1	8/23/2021 10:47:35 PM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	37	1.3	4.7		mg/Kg	1	8/23/2021 10:47:35 PM	62009
Surr: BFB	122	0	70-130		%Rec	1	8/23/2021 10:47:35 PM	62009

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	490	4.5	9.2		mg/Kg	1	8/17/2021 7:11:54 PM	61999
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	8/17/2021 7:11:54 PM	61999
Surr: DNOP	114	0	70-130		%Rec	1	8/17/2021 7:11:54 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.59	0.24	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
Barium	310	4.9	9.7		mg/Kg	100	8/25/2021 4:47:16 PM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
Chromium	20	0.24	0.49		mg/Kg	5	8/27/2021 12:53:12 PM	62061
Lead	12	0.24	0.49		mg/Kg	5	8/27/2021 12:53:12 PM	62061
Selenium	0.77	0.28	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:08:21 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0035	0.0024	0.031	J	mg/Kg	1	8/25/2021 10:35:10 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Acenaphthylene	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Aniline	ND	0.65	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Anthracene	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Azobenzene	ND	0.94	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benz(a)anthracene	ND	0.61	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(a)pyrene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(g,h,i)perylene	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzo(k)fluoranthene	ND	0.71	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzoic acid	ND	1.2	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Benzyl alcohol	ND	0.77	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-chloroethoxy)methane	ND	0.72	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-chloroethyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.0	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Bromophenyl phenyl ether	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Carbazole	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Chloro-3-methylphenol	ND	0.79	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Chloroaniline	ND	0.92	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Chloronaphthalene	ND	0.89	2.4	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Chlorophenyl phenyl ether	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996

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ND	Not Detected at the Reporting Limit
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Di-n-butyl phthalate	ND	2.6	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Dibenz(a,h)anthracene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Dibenzofuran	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,2-Dichlorobenzene	ND	0.76	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,3-Dichlorobenzene	ND	0.67	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,4-Dichlorobenzene	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Diethyl phthalate	ND	3.1	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Dimethyl phthalate	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dichlorophenol	ND	0.76	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dimethylphenol	ND	0.67	2.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.79	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dinitrophenol	ND	0.47	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4-Dinitrotoluene	ND	1.1	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,6-Dinitrotoluene	ND	0.96	4.7	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Fluoranthene	ND	0.76	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Fluorene	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachlorobenzene	ND	0.84	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachlorobutadiene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Hexachloroethane	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Isophorone	ND	0.77	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1-Methylnaphthalene	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Methylnaphthalene	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Methylphenol	ND	0.79	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
3+4-Methylphenol	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
N-Nitrosodi-n-propylamine	ND	0.87	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
N-Nitrosodiphenylamine	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Naphthalene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Nitroaniline	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Nitrobenzene	ND	0.77	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2-Nitrophenol	ND	0.81	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
4-Nitrophenol	ND	0.77	2.4	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
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ND	Not Detected at the Reporting Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.81	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Phenanthrene	ND	0.96	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Phenol	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Pyrene	ND	0.71	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
1,2,4-Trichlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4,5-Trichlorophenol	ND	0.60	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
2,4,6-Trichlorophenol	ND	0.81	1.9	D	mg/Kg	10	8/23/2021 4:20:56 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/23/2021 4:20:56 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.1	0.019	0.050		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Toluene	0.52	0.013	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Ethylbenzene	0.11	0.025	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.057	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,4-Trimethylbenzene	0.28	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,3,5-Trimethylbenzene	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.040	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Naphthalene	ND	0.038	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1-Methylnaphthalene	0.82	0.12	0.40		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Methylnaphthalene	ND	0.093	0.40		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Acetone	ND	0.33	1.5		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromobenzene	ND	0.021	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromodichloromethane	ND	0.013	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromoform	ND	0.024	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Bromomethane	ND	0.17	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Butanone	ND	0.44	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Carbon disulfide	ND	0.042	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Carbon tetrachloride	ND	0.011	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chlorobenzene	ND	0.018	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chloroethane	ND	0.038	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chloroform	ND	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Chloromethane	ND	0.035	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Chlorotoluene	ND	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.053	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
cis-1,2-DCE	ND	0.050	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
cis-1,3-Dichloropropene	ND	0.015	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.044	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Dibromochloromethane	ND	0.016	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Dibromomethane	ND	0.024	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dichlorobenzene	ND	0.021	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,3-Dichlorobenzene	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,4-Dichlorobenzene	ND	0.027	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Dichlorodifluoromethane	ND	0.039	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1-Dichloroethane	ND	0.029	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1-Dichloroethene	ND	0.022	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2-Dichloropropane	ND	0.020	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,3-Dichloropropane	ND	0.022	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2,2-Dichloropropane	ND	0.014	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1-Dichloropropene	ND	0.012	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Hexachlorobutadiene	ND	0.069	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
2-Hexanone	ND	0.044	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Isopropylbenzene	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
4-Isopropyltoluene	0.053	0.026	0.10	J	mg/Kg	2	8/17/2021 3:31:44 PM	R80598
4-Methyl-2-pentanone	ND	0.12	1.0		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Methylene chloride	ND	0.073	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
n-Butylbenzene	ND	0.027	0.30		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
n-Propylbenzene	0.031	0.016	0.10	J	mg/Kg	2	8/17/2021 3:31:44 PM	R80598
sec-Butylbenzene	ND	0.083	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Styrene	ND	0.014	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
tert-Butylbenzene	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.015	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.033	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Tetrachloroethene (PCE)	ND	0.028	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
trans-1,2-DCE	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
trans-1,3-Dichloropropene	ND	0.024	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,3-Trichlorobenzene	ND	0.016	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,4-Trichlorobenzene	ND	0.035	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,1-Trichloroethane	ND	0.022	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,1,2-Trichloroethane	ND	0.025	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Trichloroethene (TCE)	ND	0.020	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Trichlorofluoromethane	ND	0.023	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
1,2,3-Trichloropropane	ND	0.042	0.20		mg/Kg	2	8/17/2021 3:31:44 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:15:00 AM
Lab ID: 2108721-005 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.019	0.10		mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Xylenes, Total	0.18	0.053	0.20	J	mg/Kg	2	8/17/2021 3:31:44 PM	R80598
Surr: Dibromofluoromethane	94.9		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
Surr: 1,2-Dichloroethane-d4	96.6		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
Surr: Toluene-d8	104		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
Surr: 4-Bromofluorobenzene	95.4		70-130		%Rec	2	8/17/2021 3:31:44 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	200	2.8	10		mg/Kg	2	8/17/2021 3:31:44 PM	G80598
Surr: BFB	101	0	70-130		%Rec	2	8/17/2021 3:31:44 PM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1200	44	88		mg/Kg	10	8/17/2021 7:21:49 PM	61999
Motor Oil Range Organics (MRO)	ND	440	440	D	mg/Kg	10	8/17/2021 7:21:49 PM	61999
Surr: DNOP	0	0	70-130	S	%Rec	10	8/17/2021 7:21:49 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.83	0.26	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
Barium	270	5.2	10		mg/Kg	100	8/25/2021 4:56:21 PM	62061
Cadmium	ND	0.26	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
Chromium	21	0.26	0.52		mg/Kg	5	8/27/2021 12:57:45 PM	62061
Lead	13	0.26	0.52		mg/Kg	5	8/27/2021 12:57:45 PM	62061
Selenium	0.87	0.30	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
Silver	ND	0.26	0.52		mg/Kg	5	8/24/2021 6:13:44 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0043	0.0028	0.035	J	mg/Kg	1	8/25/2021 10:37:19 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzoic acid	ND	1.2	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Chloro-3-methylphenol	ND	0.82	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Diethyl phthalate	ND	3.2	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4,6-Dinitro-2-methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dinitrophenol	ND	0.49	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/23/2021 5:02:31 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/23/2021 5:02:31 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.63	0.0087	0.023		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Toluene	0.26	0.0058	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Ethylbenzene	0.048	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.026	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,4-Trimethylbenzene	0.043	0.0064	0.045	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,3,5-Trimethylbenzene	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.018	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Naphthalene	ND	0.017	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1-Methylnaphthalene	0.082	0.052	0.18	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Methylnaphthalene	ND	0.042	0.18		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Acetone	ND	0.15	0.68		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromobenzene	ND	0.0096	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromodichloromethane	ND	0.0058	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromoform	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Bromomethane	ND	0.075	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Butanone	ND	0.20	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Carbon disulfide	ND	0.019	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Carbon tetrachloride	ND	0.0050	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chlorobenzene	ND	0.0082	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chloroethane	ND	0.017	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chloroform	ND	0.0064	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Chloromethane	ND	0.016	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Chlorotoluene	ND	0.0061	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.024	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
cis-1,2-DCE	ND	0.022	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
cis-1,3-Dichloropropene	ND	0.0067	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.020	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Dibromochloromethane	ND	0.0073	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Dibromomethane	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dichlorobenzene	ND	0.0094	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,3-Dichlorobenzene	ND	0.0086	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,4-Dichlorobenzene	ND	0.012	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Dichlorodifluoromethane	ND	0.018	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1-Dichloroethane	ND	0.013	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1-Dichloroethene	ND	0.0097	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2-Dichloropropane	ND	0.0088	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,3-Dichloropropane	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2,2-Dichloropropane	ND	0.0064	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1-Dichloropropene	ND	0.0055	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Hexachlorobutadiene	ND	0.031	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
2-Hexanone	ND	0.020	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Isopropylbenzene	ND	0.0084	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
4-Isopropyltoluene	ND	0.012	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
4-Methyl-2-pentanone	ND	0.053	0.45		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Methylene chloride	ND	0.033	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
n-Butylbenzene	ND	0.012	0.14		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
n-Propylbenzene	0.0084	0.0073	0.045	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
sec-Butylbenzene	ND	0.037	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Styrene	ND	0.0062	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
tert-Butylbenzene	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0067	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.015	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Tetrachloroethene (PCE)	ND	0.012	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
trans-1,2-DCE	ND	0.0088	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
trans-1,3-Dichloropropene	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0070	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,4-Trichlorobenzene	ND	0.016	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,1-Trichloroethane	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,1,2-Trichloroethane	ND	0.011	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Trichloroethene (TCE)	ND	0.0089	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Trichlorofluoromethane	ND	0.010	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
1,2,3-Trichloropropane	ND	0.019	0.091		mg/Kg	1	8/17/2021 4:29:14 PM	R80598

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB1 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 10:20:00 AM
Lab ID: 2108721-006 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0086	0.045		mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Xylenes, Total	0.082	0.024	0.091	J	mg/Kg	1	8/17/2021 4:29:14 PM	R80598
Surr: Dibromofluoromethane	93.6		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
Surr: 1,2-Dichloroethane-d4	95.2		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
Surr: Toluene-d8	104		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
Surr: 4-Bromofluorobenzene	92.6		70-130		%Rec	1	8/17/2021 4:29:14 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	50	1.3	4.5		mg/Kg	1	8/17/2021 4:29:14 PM	G80598
Surr: BFB	97.3	0	70-130		%Rec	1	8/17/2021 4:29:14 PM	G80598

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	650	45	90		mg/Kg	10	8/19/2021 5:21:33 AM	61999
Motor Oil Range Organics (MRO)	970	450	450		mg/Kg	10	8/19/2021 5:21:33 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	10	8/19/2021 5:21:33 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	2.5	5.0		mg/Kg	50	8/25/2021 5:09:59 PM	62061
Barium	730	25	50		mg/Kg	500	8/25/2021 5:05:26 PM	62061
Cadmium	ND	2.5	5.0		mg/Kg	50	8/25/2021 5:09:59 PM	62061
Chromium	26	0.50	1.0		mg/Kg	10	8/25/2021 5:14:32 PM	62061
Lead	25	0.50	1.0		mg/Kg	10	8/27/2021 1:02:19 PM	62061
Selenium	ND	2.9	5.0		mg/Kg	50	8/25/2021 5:09:59 PM	62061
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 1:02:19 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.094	0.0026	0.033		mg/Kg	1	8/25/2021 10:39:28 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	4.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Acenaphthylene	ND	4.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Aniline	ND	3.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Anthracene	ND	4.4	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Azobenzene	ND	4.9	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benz(a)anthracene	ND	3.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(a)pyrene	ND	4.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(b)fluoranthene	ND	5.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(g,h,i)perylene	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzo(k)fluoranthene	ND	3.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzoic acid	ND	6.1	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Benzyl alcohol	ND	4.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-chloroethoxy)methane	ND	3.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-chloroethyl)ether	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-chloroisopropyl)ether	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Bis(2-ethylhexyl)phthalate	ND	10	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Bromophenyl phenyl ether	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Butyl benzyl phthalate	ND	3.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Carbazole	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Chloro-3-methylphenol	ND	4.1	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Chloroaniline	ND	4.7	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Chloronaphthalene	ND	4.6	12	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Chlorophenol	ND	5.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Chlorophenyl phenyl ether	ND	4.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Di-n-butyl phthalate	ND	14	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Di-n-octyl phthalate	ND	6.3	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Dibenz(a,h)anthracene	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Dibenzofuran	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,2-Dichlorobenzene	ND	3.9	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,3-Dichlorobenzene	ND	3.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,4-Dichlorobenzene	ND	4.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
3,3´-Dichlorobenzidine	ND	7.3	12	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Diethyl phthalate	ND	16	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Dimethyl phthalate	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dichlorophenol	ND	4.0	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dimethylphenol	ND	3.5	15	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4,6-Dinitro-2-methylphenol	ND	4.1	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dinitrophenol	ND	2.5	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4-Dinitrotoluene	ND	5.9	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,6-Dinitrotoluene	ND	5.0	24	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Fluoranthene	ND	3.9	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Fluorene	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachlorobenzene	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachlorobutadiene	ND	4.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachlorocyclopentadiene	ND	5.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Hexachloroethane	ND	4.3	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Indeno(1,2,3-cd)pyrene	ND	5.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Isophorone	ND	4.0	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1-Methylnaphthalene	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Methylnaphthalene	ND	4.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Methylphenol	ND	4.1	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
3+4-Methylphenol	ND	4.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
N-Nitrosodi-n-propylamine	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
N-Nitrosodimethylamine	ND	7.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
N-Nitrosodiphenylamine	ND	5.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Naphthalene	ND	4.6	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Nitroaniline	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
3-Nitroaniline	ND	5.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Nitroaniline	ND	6.3	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Nitrobenzene	ND	4.0	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2-Nitrophenol	ND	4.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
4-Nitrophenol	ND	4.0	12	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	4.2	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Phenanthrene	ND	5.0	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Phenol	ND	3.8	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Pyrene	ND	3.7	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Pyridine	ND	7.8	19	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
1,2,4-Trichlorobenzene	ND	4.5	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4,5-Trichlorophenol	ND	3.1	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
2,4,6-Trichlorophenol	ND	4.2	9.7	D	mg/Kg	50	8/23/2021 5:44:02 PM	61996
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/23/2021 5:44:02 PM	61996
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0092	0.024		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Toluene	ND	0.0062	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Ethylbenzene	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.027	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,4-Trimethylbenzene	ND	0.0068	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,3,5-Trimethylbenzene	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.019	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Naphthalene	ND	0.018	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1-Methylnaphthalene	ND	0.055	0.19		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Methylnaphthalene	0.054	0.044	0.19	J	mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Acetone	ND	0.16	0.72		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromobenzene	ND	0.010	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromodichloromethane	ND	0.0061	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromoform	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Bromomethane	ND	0.079	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Butanone	ND	0.21	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Carbon disulfide	ND	0.020	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Carbon tetrachloride	ND	0.0053	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chlorobenzene	ND	0.0086	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chloroethane	ND	0.018	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chloroform	ND	0.0068	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Chloromethane	ND	0.017	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Chlorotoluene	ND	0.0064	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB2 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.025	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
cis-1,2-DCE	ND	0.024	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
cis-1,3-Dichloropropene	ND	0.0071	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.021	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Dibromochloromethane	ND	0.0077	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Dibromomethane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dichlorobenzene	ND	0.010	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,3-Dichlorobenzene	ND	0.0091	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,4-Dichlorobenzene	ND	0.013	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Dichlorodifluoromethane	ND	0.019	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1-Dichloroethane	ND	0.014	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1-Dichloroethene	ND	0.010	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2-Dichloropropane	ND	0.0093	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,3-Dichloropropane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2,2-Dichloropropane	ND	0.0068	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1-Dichloropropene	ND	0.0058	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Hexachlorobutadiene	ND	0.033	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
2-Hexanone	ND	0.021	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Isopropylbenzene	ND	0.0089	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
4-Isopropyltoluene	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
4-Methyl-2-pentanone	ND	0.056	0.48		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Methylene chloride	ND	0.035	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
n-Butylbenzene	ND	0.013	0.14		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
n-Propylbenzene	ND	0.0077	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
sec-Butylbenzene	ND	0.040	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Styrene	ND	0.0065	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
tert-Butylbenzene	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0070	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.016	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Tetrachloroethene (PCE)	ND	0.013	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
trans-1,2-DCE	ND	0.0093	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
trans-1,3-Dichloropropene	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0074	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,4-Trichlorobenzene	ND	0.017	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,1-Trichloroethane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,1,2-Trichloroethane	ND	0.012	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Trichloroethene (TCE)	ND	0.0094	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Trichlorofluoromethane	ND	0.011	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
1,2,3-Trichloropropane	ND	0.020	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:30:00 AM
Lab ID: 2108721-007 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0091	0.048		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Xylenes, Total	ND	0.025	0.096		mg/Kg	1	8/16/2021 6:38:09 PM	A80534
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
Surr: Toluene-d8	97.9		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
Surr: 4-Bromofluorobenzene	89.8		70-130		%Rec	1	8/16/2021 6:38:09 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.3	4.8		mg/Kg	1	8/16/2021 6:38:09 PM	B80534
Surr: BFB	97.1	0	70-130		%Rec	1	8/16/2021 6:38:09 PM	B80534

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	24000	480	980		mg/Kg	100	8/17/2021 7:41:40 PM	61999
Motor Oil Range Organics (MRO)	5300	4900	4900		mg/Kg	100	8/17/2021 7:41:40 PM	61999
Surr: DNOP	0	0	70-130	S	%Rec	100	8/17/2021 7:41:40 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	9.7	19		mg/Kg	200	8/25/2021 5:19:05 PM	62061
Barium	340	9.7	19		mg/Kg	200	8/25/2021 5:19:05 PM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:24:31 PM	62061
Chromium	47	0.49	0.97		mg/Kg	10	8/25/2021 5:32:46 PM	62061
Lead	57	0.97	1.9		mg/Kg	20	8/30/2021 2:15:42 PM	62061
Selenium	ND	11	19		mg/Kg	200	8/25/2021 5:19:05 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:24:31 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.062	0.0024	0.031		mg/Kg	1	8/25/2021 10:41:36 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	88	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Acenaphthylene	ND	89	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Aniline	ND	68	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Anthracene	ND	89	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Azobenzene	ND	98	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benz(a)anthracene	ND	63	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(a)pyrene	ND	93	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(b)fluoranthene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(g,h,i)perylene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzo(k)fluoranthene	ND	74	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzoic acid	ND	120	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Benzyl alcohol	ND	81	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-chloroethoxy)methane	ND	75	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-chloroethyl)ether	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-chloroisopropyl)ether	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Bis(2-ethylhexyl)phthalate	ND	210	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Bromophenyl phenyl ether	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Butyl benzyl phthalate	ND	60	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Carbazole	ND	87	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Chloro-3-methylphenol	ND	83	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Chloroaniline	ND	96	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Chloronaphthalene	ND	93	250	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Chlorophenol	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Chlorophenyl phenyl ether	ND	84	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017

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Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	87	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Di-n-butyl phthalate	ND	270	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Di-n-octyl phthalate	ND	130	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Dibenz(a,h)anthracene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Dibenzofuran	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,2-Dichlorobenzene	ND	80	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,3-Dichlorobenzene	ND	70	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,4-Dichlorobenzene	ND	84	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
3,3´-Dichlorobenzidine	ND	150	250	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Diethyl phthalate	ND	320	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Dimethyl phthalate	ND	91	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dichlorophenol	ND	80	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dimethylphenol	ND	70	300	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4,6-Dinitro-2-methylphenol	ND	83	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dinitrophenol	ND	50	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4-Dinitrotoluene	ND	120	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,6-Dinitrotoluene	ND	100	490	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Fluoranthene	ND	80	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Fluorene	ND	88	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachlorobenzene	ND	88	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachlorobutadiene	ND	92	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachlorocyclopentadiene	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Hexachloroethane	ND	87	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Indeno(1,2,3-cd)pyrene	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Isophorone	ND	80	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1-Methylnaphthalene	ND	91	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Methylnaphthalene	ND	81	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Methylphenol	ND	83	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
3+4-Methylphenol	ND	81	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
N-Nitrosodi-n-propylamine	ND	91	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
N-Nitrosodimethylamine	ND	150	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
N-Nitrosodiphenylamine	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Naphthalene	ND	93	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Nitroaniline	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
3-Nitroaniline	ND	110	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Nitroaniline	ND	130	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Nitrobenzene	ND	81	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2-Nitrophenol	ND	85	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
4-Nitrophenol	ND	81	250	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	85	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Phenanthrene	ND	100	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Phenol	ND	76	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Pyrene	ND	75	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Pyridine	ND	160	390	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
1,2,4-Trichlorobenzene	ND	90	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4,5-Trichlorophenol	ND	63	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
2,4,6-Trichlorophenol	ND	85	200	D	mg/Kg	100	8/24/2021 2:55:10 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/24/2021 2:55:10 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.41	0.034	0.089		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Toluene	0.026	0.023	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Ethylbenzene	1.0	0.043	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Methyl tert-butyl ether (MTBE)	ND	0.10	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,4-Trimethylbenzene	1.1	0.025	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,3,5-Trimethylbenzene	0.063	0.040	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.040	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.070	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Naphthalene	ND	0.066	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1-Methylnaphthalene	5.9	0.20	0.71		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Methylnaphthalene	0.61	0.16	0.71	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Acetone	ND	0.58	2.7		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromobenzene	ND	0.038	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromodichloromethane	ND	0.023	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromoform	ND	0.043	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Bromomethane	ND	0.29	0.53		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Butanone	ND	0.77	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Carbon disulfide	ND	0.073	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Carbon tetrachloride	ND	0.020	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chlorobenzene	ND	0.032	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chloroethane	ND	0.066	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chloroform	ND	0.025	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Chloromethane	ND	0.062	0.53		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Chlorotoluene	ND	0.024	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.093	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
cis-1,2-DCE	ND	0.088	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
cis-1,3-Dichloropropene	ND	0.026	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.077	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Dibromochloromethane	ND	0.028	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Dibromomethane	ND	0.041	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dichlorobenzene	ND	0.037	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,3-Dichlorobenzene	ND	0.033	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,4-Dichlorobenzene	ND	0.047	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Dichlorodifluoromethane	ND	0.068	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1-Dichloroethane	ND	0.052	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1-Dichloroethene	ND	0.038	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2-Dichloropropane	ND	0.035	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,3-Dichloropropane	ND	0.039	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2,2-Dichloropropane	ND	0.025	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1-Dichloropropene	ND	0.021	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Hexachlorobutadiene	ND	0.12	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
2-Hexanone	ND	0.077	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Isopropylbenzene	0.041	0.033	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
4-Isopropyltoluene	0.049	0.046	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
4-Methyl-2-pentanone	ND	0.21	1.8		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Methylene chloride	ND	0.13	0.53		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
n-Butylbenzene	0.054	0.047	0.53	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
n-Propylbenzene	0.094	0.029	0.18	J	mg/Kg	5	8/16/2021 7:06:48 PM	A80534
sec-Butylbenzene	ND	0.15	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Styrene	ND	0.024	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
tert-Butylbenzene	ND	0.041	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.026	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.057	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Tetrachloroethene (PCE)	ND	0.049	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
trans-1,2-DCE	ND	0.034	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
trans-1,3-Dichloropropene	ND	0.042	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,3-Trichlorobenzene	ND	0.027	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,4-Trichlorobenzene	ND	0.062	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,1-Trichloroethane	ND	0.039	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,1,2-Trichloroethane	ND	0.044	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Trichloroethene (TCE)	ND	0.035	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Trichlorofluoromethane	ND	0.040	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
1,2,3-Trichloropropane	ND	0.075	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:35:00 AM
Lab ID: 2108721-008 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.034	0.18		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Xylenes, Total	1.3	0.093	0.35		mg/Kg	5	8/16/2021 7:06:48 PM	A80534
Surr: Dibromofluoromethane	109		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
Surr: 1,2-Dichloroethane-d4	112		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
Surr: Toluene-d8	96.2		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
Surr: 4-Bromofluorobenzene	92.9		70-130		%Rec	5	8/16/2021 7:06:48 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	43	4.9	18		mg/Kg	5	8/16/2021 7:06:48 PM	B80534
Surr: BFB	98.9	0	70-130		%Rec	5	8/16/2021 7:06:48 PM	B80534

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	130	4.7	9.5		mg/Kg	1	8/20/2021 2:21:59 PM	61999
Motor Oil Range Organics (MRO)	220	47	47		mg/Kg	1	8/20/2021 2:21:59 PM	61999
Surr: DNOP	117	0	70-130		%Rec	1	8/20/2021 2:21:59 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	10	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Barium	270	10	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Cadmium	ND	10	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Chromium	28	0.50	1.0		mg/Kg	10	8/25/2021 5:41:52 PM	62061
Lead	16	0.50	1.0		mg/Kg	10	8/30/2021 2:19:09 PM	62061
Selenium	ND	11	20		mg/Kg	200	8/25/2021 5:37:19 PM	62061
Silver	ND	0.25	0.50		mg/Kg	5	8/27/2021 1:20:34 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.029	0.0028	0.036	J	mg/Kg	1	8/25/2021 10:43:44 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benz(a)anthracene	ND	0.63	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(a)pyrene	ND	0.92	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzoic acid	ND	1.2	9.7	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Benzyl alcohol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052

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Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,2-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Dimethyl phthalate	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Fluoranthene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Fluorene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Naphthalene	ND	0.92	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2-Nitrophenol	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Pyrene	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
2,4,6-Trichlorophenol	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 2:04:40 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 2:04:40 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.099	0.0072	0.019		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Toluene	0.061	0.0048	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Ethylbenzene	6.2	0.092	0.38		mg/Kg	10	8/17/2021 5:26:46 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.021	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,4-Trimethylbenzene	12	0.053	0.38		mg/Kg	10	8/17/2021 5:26:46 PM	R80598
1,3,5-Trimethylbenzene	0.80	0.0084	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.0086	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.015	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Naphthalene	1.2	0.014	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1-Methylnaphthalene	3.7	0.43	1.5		mg/Kg	10	8/17/2021 5:26:46 PM	R80598
2-Methylnaphthalene	1.8	0.035	0.15		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Acetone	ND	0.12	0.56		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromobenzene	ND	0.0080	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromodichloromethane	ND	0.0048	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromoform	ND	0.0091	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Bromomethane	ND	0.062	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2-Butanone	ND	0.16	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Carbon disulfide	ND	0.015	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Carbon tetrachloride	ND	0.0042	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chlorobenzene	ND	0.0068	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chloroethane	ND	0.014	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chloroform	ND	0.0053	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2-Chlorotoluene	ND	0.0050	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534

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Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
cis-1,2-DCE	ND	0.019	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
cis-1,3-Dichloropropene	ND	0.0056	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.016	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Dibromochloromethane	ND	0.0060	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Dibromomethane	ND	0.0088	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dichlorobenzene	ND	0.0078	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,3-Dichlorobenzene	ND	0.0071	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,4-Dichlorobenzene	ND	0.010	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Dichlorodifluoromethane	ND	0.015	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1-Dichloroethane	ND	0.011	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1-Dichloroethene	ND	0.0081	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2-Dichloropropane	ND	0.0073	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,3-Dichloropropane	ND	0.0083	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2,2-Dichloropropane	ND	0.0053	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1-Dichloropropene	ND	0.0045	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Hexachlorobutadiene	ND	0.026	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
2-Hexanone	ND	0.016	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Isopropylbenzene	0.52	0.0070	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
4-Isopropyltoluene	0.11	0.0097	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
4-Methyl-2-pentanone	ND	0.044	0.38		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
n-Butylbenzene	0.38	0.010	0.11		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
n-Propylbenzene	2.3	0.0061	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
sec-Butylbenzene	0.17	0.031	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Styrene	ND	0.0051	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
tert-Butylbenzene	ND	0.0087	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0055	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.012	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Tetrachloroethene (PCE)	ND	0.010	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
trans-1,2-DCE	ND	0.0073	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
trans-1,3-Dichloropropene	ND	0.0088	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0058	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,4-Trichlorobenzene	ND	0.013	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,1-Trichloroethane	ND	0.0083	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,1,2-Trichloroethane	ND	0.0094	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Trichloroethene (TCE)	ND	0.0074	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Trichlorofluoromethane	ND	0.0085	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
1,2,3-Trichloropropane	ND	0.016	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:40:00 AM
Lab ID: 2108721-009 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0072	0.038		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Xylenes, Total	8.8	0.020	0.075		mg/Kg	1	8/16/2021 7:35:25 PM	A80534
Surr: Dibromofluoromethane	99.1		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
Surr: Toluene-d8	92.5		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
Surr: 4-Bromofluorobenzene	111		70-130		%Rec	1	8/16/2021 7:35:25 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	270	1.0	3.8		mg/Kg	1	8/16/2021 7:35:25 PM	B80534
Surr: BFB	79.8	0	70-130		%Rec	1	8/16/2021 7:35:25 PM	B80534

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	24	4.5	9.1		mg/Kg	1	8/18/2021 4:40:12 PM	61999
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	8/18/2021 4:40:12 PM	61999
Surr: DNOP	124	0	70-130		%Rec	1	8/18/2021 4:40:12 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.73	0.24	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
Barium	380	9.7	19		mg/Kg	200	8/25/2021 5:46:25 PM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
Chromium	15	0.24	0.49		mg/Kg	5	8/27/2021 1:25:07 PM	62061
Lead	12	0.24	0.49		mg/Kg	5	8/28/2021 2:24:16 PM	62061
Selenium	0.82	0.28	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 6:51:30 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0054	0.0026	0.033	J	mg/Kg	1	8/25/2021 10:50:04 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.99	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Chloronaphthalene	ND	0.93	2.4	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Dimethyl phthalate	ND	0.90	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Fluorene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2-Nitrophenol	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB2 (5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Phenol	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 2:46:09 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 2:46:09 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.017	0.0057	0.015		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Toluene	ND	0.0038	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Ethylbenzene	ND	0.0072	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.017	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,4-Trimethylbenzene	0.0058	0.0042	0.029	J	mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0066	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0067	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.012	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Naphthalene	ND	0.011	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1-Methylnaphthalene	ND	0.034	0.12		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Methylnaphthalene	ND	0.027	0.12		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Acetone	ND	0.096	0.44		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromobenzene	ND	0.0062	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromoform	ND	0.0071	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Bromomethane	ND	0.049	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Butanone	ND	0.13	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Carbon tetrachloride	ND	0.0033	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chlorobenzene	ND	0.0053	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chloroethane	ND	0.011	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chloroform	ND	0.0042	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Chloromethane	ND	0.010	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Chlorotoluene	ND	0.0039	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB2 (5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
cis-1,2-DCE	ND	0.015	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
cis-1,3-Dichloropropene	ND	0.0044	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.013	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Dibromochloromethane	ND	0.0047	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Dibromomethane	ND	0.0069	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dichlorobenzene	ND	0.0061	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,3-Dichlorobenzene	ND	0.0056	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,4-Dichlorobenzene	ND	0.0079	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1-Dichloroethane	ND	0.0086	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1-Dichloroethene	ND	0.0063	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2-Dichloropropane	ND	0.0057	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,3-Dichloropropane	ND	0.0065	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2,2-Dichloropropane	ND	0.0042	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1-Dichloropropene	ND	0.0036	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Hexachlorobutadiene	ND	0.020	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Isopropylbenzene	ND	0.0055	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
4-Isopropyltoluene	ND	0.0076	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
4-Methyl-2-pentanone	ND	0.034	0.29		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Methylene chloride	ND	0.021	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
n-Butylbenzene	ND	0.0079	0.088		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
n-Propylbenzene	ND	0.0047	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
sec-Butylbenzene	ND	0.024	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Styrene	ND	0.0040	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
tert-Butylbenzene	ND	0.0068	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0043	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.0095	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Tetrachloroethene (PCE)	ND	0.0081	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
trans-1,2-DCE	ND	0.0057	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
trans-1,3-Dichloropropene	ND	0.0069	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0045	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,1-Trichloroethane	ND	0.0065	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,1,2-Trichloroethane	ND	0.0074	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Trichloroethene (TCE)	ND	0.0058	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Trichlorofluoromethane	ND	0.0067	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
1,2,3-Trichloropropane	ND	0.012	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:45:00 AM
Lab ID: 2108721-010 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0056	0.029		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Xylenes, Total	ND	0.015	0.059		mg/Kg	1	8/17/2021 5:55:33 PM	R80598
Surr: Dibromofluoromethane	99.4		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
Surr: 1,2-Dichloroethane-d4	96.5		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
Surr: Toluene-d8	106		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
Surr: 4-Bromofluorobenzene	92.3		70-130		%Rec	1	8/17/2021 5:55:33 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.4	5.0		mg/Kg	1	8/18/2021 1:32:23 PM	R80646
Surr: BFB	94.7	0	70-130		%Rec	1	8/18/2021 1:32:23 PM	R80646

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	9.9		mg/Kg	1	8/17/2021 8:11:31 PM	61999
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 8:11:31 PM	61999
Surr: DNOP	111	0	70-130		%Rec	1	8/17/2021 8:11:31 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.69	0.26	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
Barium	230	10	21		mg/Kg	200	8/25/2021 5:55:32 PM	62061
Cadmium	ND	0.26	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
Chromium	20	0.26	0.51		mg/Kg	5	8/27/2021 1:29:41 PM	62061
Lead	12	0.26	0.51		mg/Kg	5	8/28/2021 2:27:44 PM	62061
Selenium	0.83	0.30	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
Silver	ND	0.26	0.51		mg/Kg	5	8/24/2021 6:56:54 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0045	0.0028	0.036	J	mg/Kg	1	8/25/2021 10:52:12 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.085	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Acenaphthylene	ND	0.086	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Aniline	ND	0.066	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Anthracene	ND	0.086	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Azobenzene	ND	0.095	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benz(a)anthracene	ND	0.061	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(a)pyrene	ND	0.090	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(b)fluoranthene	ND	0.10	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(g,h,i)perylene	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzo(k)fluoranthene	ND	0.071	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzoic acid	ND	0.12	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Benzyl alcohol	ND	0.078	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-chloroethoxy)methane	ND	0.073	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-chloroethyl)ether	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Bis(2-ethylhexyl)phthalate	ND	0.20	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Bromophenyl phenyl ether	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Butyl benzyl phthalate	ND	0.058	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Carbazole	ND	0.084	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Chloro-3-methylphenol	ND	0.080	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Chloroaniline	ND	0.092	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Chloronaphthalene	ND	0.090	0.24		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Chlorophenyl phenyl ether	ND	0.081	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052

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ND	Not Detected at the Reporting Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.084	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Di-n-butyl phthalate	ND	0.27	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Di-n-octyl phthalate	ND	0.12	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Dibenz(a,h)anthracene	ND	0.10	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Dibenzofuran	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,2-Dichlorobenzene	ND	0.077	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,3-Dichlorobenzene	ND	0.068	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,4-Dichlorobenzene	ND	0.081	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
3,3´-Dichlorobenzidine	ND	0.14	0.24		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Diethyl phthalate	ND	0.31	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Dimethyl phthalate	ND	0.088	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dichlorophenol	ND	0.077	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dimethylphenol	ND	0.068	0.28		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.080	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dinitrophenol	ND	0.048	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4-Dinitrotoluene	ND	0.12	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,6-Dinitrotoluene	ND	0.097	0.47		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Fluoranthene	ND	0.077	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Fluorene	ND	0.085	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachlorobenzene	ND	0.085	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachlorobutadiene	ND	0.089	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Hexachloroethane	ND	0.084	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Isophorone	ND	0.078	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1-Methylnaphthalene	ND	0.087	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Methylnaphthalene	ND	0.078	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Methylphenol	ND	0.080	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
3+4-Methylphenol	ND	0.078	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
N-Nitrosodi-n-propylamine	ND	0.088	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
N-Nitrosodiphenylamine	ND	0.099	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Naphthalene	ND	0.090	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Nitroaniline	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Nitroaniline	ND	0.12	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Nitrobenzene	ND	0.078	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2-Nitrophenol	ND	0.082	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
4-Nitrophenol	ND	0.078	0.24		mg/Kg	1	8/25/2021 2:03:31 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.082	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Phenanthrene	ND	0.097	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Phenol	ND	0.073	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Pyrene	ND	0.072	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Pyridine	ND	0.15	0.38		mg/Kg	1	8/25/2021 2:03:31 AM	62052
1,2,4-Trichlorobenzene	ND	0.087	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4,5-Trichlorophenol	ND	0.061	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
2,4,6-Trichlorophenol	ND	0.082	0.19		mg/Kg	1	8/25/2021 2:03:31 AM	62052
Surr: 2-Fluorophenol	23.4		20.3-74.1		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: Phenol-d5	31.0		23.1-92.7		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: 2,4,6-Tribromophenol	50.2		17.3-122		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: Nitrobenzene-d5	24.6		24.7-73.2	S	%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: 2-Fluorobiphenyl	28.7		21.5-90.1		%Rec	1	8/25/2021 2:03:31 AM	62052
Surr: 4-Terphenyl-d14	122		15-140		%Rec	1	8/25/2021 2:03:31 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.86	0.0078	0.020		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Toluene	0.023	0.0052	0.041	J	mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Ethylbenzene	0.012	0.0099	0.041	J	mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.023	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,4-Trimethylbenzene	ND	0.0057	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0091	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0093	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.016	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Naphthalene	ND	0.015	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1-Methylnaphthalene	ND	0.047	0.16		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Methylnaphthalene	ND	0.038	0.16		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Acetone	ND	0.13	0.61		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromobenzene	ND	0.0086	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromodichloromethane	ND	0.0052	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromoform	ND	0.0098	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Butanone	ND	0.18	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Carbon disulfide	ND	0.017	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Carbon tetrachloride	ND	0.0045	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chlorobenzene	ND	0.0073	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chloroethane	ND	0.015	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chloroform	ND	0.0058	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Chlorotoluene	ND	0.0054	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB2 (7.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
cis-1,2-DCE	ND	0.020	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
cis-1,3-Dichloropropene	ND	0.0060	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.018	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Dibromochloromethane	ND	0.0065	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Dibromomethane	ND	0.0095	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dichlorobenzene	ND	0.0085	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,3-Dichlorobenzene	ND	0.0077	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,4-Dichlorobenzene	ND	0.011	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Dichlorodifluoromethane	ND	0.016	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1-Dichloroethane	ND	0.012	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1-Dichloroethene	ND	0.0087	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2-Dichloropropane	ND	0.0079	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,3-Dichloropropane	ND	0.0089	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2,2-Dichloropropane	ND	0.0058	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1-Dichloropropene	ND	0.0049	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Hexachlorobutadiene	ND	0.028	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
2-Hexanone	ND	0.018	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Isopropylbenzene	ND	0.0075	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
4-Isopropyltoluene	ND	0.010	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
4-Methyl-2-pentanone	ND	0.047	0.41		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
n-Butylbenzene	ND	0.011	0.12		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
n-Propylbenzene	ND	0.0066	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
sec-Butylbenzene	ND	0.034	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Styrene	ND	0.0055	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
tert-Butylbenzene	ND	0.0094	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0060	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Tetrachloroethene (PCE)	ND	0.011	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
trans-1,2-DCE	ND	0.0079	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
trans-1,3-Dichloropropene	ND	0.0095	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0063	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,4-Trichlorobenzene	ND	0.014	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,1-Trichloroethane	ND	0.0090	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,1,2-Trichloroethane	ND	0.010	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Trichloroethene (TCE)	ND	0.0080	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Trichlorofluoromethane	ND	0.0092	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
1,2,3-Trichloropropane	ND	0.017	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:50:00 AM
Lab ID: 2108721-011 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0078	0.041		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Xylenes, Total	ND	0.021	0.081		mg/Kg	1	8/17/2021 6:53:09 PM	R80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
Surr: 1,2-Dichloroethane-d4	99.8		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
Surr: Toluene-d8	103		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
Surr: 4-Bromofluorobenzene	92.9		70-130		%Rec	1	8/17/2021 6:53:09 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	9.4	1.1	4.1		mg/Kg	1	8/17/2021 6:53:09 PM	G80598
Surr: BFB	94.6	0	70-130		%Rec	1	8/17/2021 6:53:09 PM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.6	9.3		mg/Kg	1	8/17/2021 8:21:40 PM	61999
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/17/2021 8:21:40 PM	61999
Surr: DNOP	115	0	70-130		%Rec	1	8/17/2021 8:21:40 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.74	0.26	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
Barium	270	10	21		mg/Kg	200	8/26/2021 9:54:34 AM	62061
Cadmium	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
Chromium	21	0.26	0.52		mg/Kg	5	8/27/2021 1:34:27 PM	62061
Lead	13	0.26	0.52		mg/Kg	5	8/28/2021 2:31:11 PM	62061
Selenium	0.83	0.30	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
Silver	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:02:18 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0050	0.0026	0.033	J	mg/Kg	1	8/25/2021 10:54:19 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.089	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Acenaphthylene	ND	0.090	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Aniline	ND	0.069	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Anthracene	ND	0.090	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Azobenzene	ND	0.099	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benz(a)anthracene	ND	0.064	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(a)pyrene	ND	0.093	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(b)fluoranthene	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzo(k)fluoranthene	ND	0.074	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzoic acid	ND	0.12	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Benzyl alcohol	ND	0.081	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-chloroethoxy)methane	ND	0.076	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Bis(2-ethylhexyl)phthalate	ND	0.21	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Butyl benzyl phthalate	ND	0.060	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Carbazole	ND	0.087	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Chloro-3-methylphenol	ND	0.084	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Chloroaniline	ND	0.096	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Chloronaphthalene	ND	0.094	0.25		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Chlorophenyl phenyl ether	ND	0.084	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.087	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Di-n-butyl phthalate	ND	0.28	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Di-n-octyl phthalate	ND	0.13	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,2-Dichlorobenzene	ND	0.080	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,3-Dichlorobenzene	ND	0.071	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,4-Dichlorobenzene	ND	0.084	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Diethyl phthalate	ND	0.32	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Dimethyl phthalate	ND	0.092	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dichlorophenol	ND	0.080	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dimethylphenol	ND	0.070	0.30		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.083	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dinitrophenol	ND	0.050	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,6-Dinitrotoluene	ND	0.10	0.50		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Fluoranthene	ND	0.080	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Fluorene	ND	0.088	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachlorobenzene	ND	0.088	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachlorobutadiene	ND	0.093	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Hexachloroethane	ND	0.088	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Isophorone	ND	0.081	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1-Methylnaphthalene	ND	0.091	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Methylnaphthalene	ND	0.082	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Methylphenol	ND	0.083	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
3+4-Methylphenol	ND	0.082	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
N-Nitrosodi-n-propylamine	ND	0.092	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Naphthalene	ND	0.093	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
3-Nitroaniline	ND	0.12	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Nitrobenzene	ND	0.081	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2-Nitrophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
4-Nitrophenol	ND	0.081	0.25		mg/Kg	1	8/25/2021 2:45:01 AM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.086	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Phenanthrene	ND	0.10	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Phenol	0.14	0.076	0.20	J	mg/Kg	1	8/25/2021 2:45:01 AM	62052
Pyrene	ND	0.075	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Pyridine	ND	0.16	0.40		mg/Kg	1	8/25/2021 2:45:01 AM	62052
1,2,4-Trichlorobenzene	ND	0.091	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
2,4,6-Trichlorophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 2:45:01 AM	62052
Surr: 2-Fluorophenol	69.6		20.3-74.1		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: Phenol-d5	81.7		23.1-92.7		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: 2,4,6-Tribromophenol	72.0		17.3-122		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: Nitrobenzene-d5	57.0		24.7-73.2		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: 2-Fluorobiphenyl	51.4		21.5-90.1		%Rec	1	8/25/2021 2:45:01 AM	62052
Surr: 4-Terphenyl-d14	130		15-140		%Rec	1	8/25/2021 2:45:01 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.2	0.0081	0.021		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Toluene	0.056	0.0054	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Ethylbenzene	0.036	0.010	0.042	J	mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Methyl tert-butyl ether (MTBE)	ND	0.024	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,4-Trimethylbenzene	ND	0.0060	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0095	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0096	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.017	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Naphthalene	ND	0.016	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1-Methylnaphthalene	ND	0.048	0.17		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Methylnaphthalene	ND	0.039	0.17		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Acetone	ND	0.14	0.63		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromobenzene	ND	0.0090	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromodichloromethane	ND	0.0054	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromoform	ND	0.010	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Bromomethane	ND	0.070	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Butanone	ND	0.18	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Carbon disulfide	ND	0.017	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Carbon tetrachloride	ND	0.0047	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chlorobenzene	ND	0.0076	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chloroethane	ND	0.016	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chloroform	ND	0.0060	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Chloromethane	ND	0.015	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Chlorotoluene	ND	0.0057	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.022	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
cis-1,2-DCE	ND	0.021	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
cis-1,3-Dichloropropene	ND	0.0063	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.018	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Dibromochloromethane	ND	0.0068	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Dibromomethane	ND	0.0099	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dichlorobenzene	ND	0.0088	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,3-Dichlorobenzene	ND	0.0080	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,4-Dichlorobenzene	ND	0.011	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Dichlorodifluoromethane	ND	0.016	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1-Dichloroethane	ND	0.012	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1-Dichloroethene	ND	0.0091	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2-Dichloropropane	ND	0.0082	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,3-Dichloropropane	ND	0.0093	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2,2-Dichloropropane	ND	0.0060	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1-Dichloropropene	ND	0.0051	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Hexachlorobutadiene	ND	0.029	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
2-Hexanone	ND	0.018	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Isopropylbenzene	ND	0.0078	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
4-Isopropyltoluene	ND	0.011	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
4-Methyl-2-pentanone	ND	0.049	0.42		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Methylene chloride	ND	0.031	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
n-Butylbenzene	ND	0.011	0.13		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
n-Propylbenzene	ND	0.0068	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
sec-Butylbenzene	ND	0.035	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Styrene	ND	0.0058	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
tert-Butylbenzene	ND	0.0098	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0062	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.014	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Tetrachloroethene (PCE)	ND	0.012	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
trans-1,2-DCE	ND	0.0082	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
trans-1,3-Dichloropropene	ND	0.0099	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0065	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,4-Trichlorobenzene	ND	0.015	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,1-Trichloroethane	ND	0.0093	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,1,2-Trichloroethane	ND	0.011	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Trichloroethene (TCE)	ND	0.0083	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Trichlorofluoromethane	ND	0.0096	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
1,2,3-Trichloropropane	ND	0.018	0.084		mg/Kg	1	8/17/2021 7:50:34 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB2 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 11:55:00 AM
Lab ID: 2108721-012 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0081	0.042		mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Xylenes, Total	0.048	0.022	0.084	J	mg/Kg	1	8/17/2021 7:50:34 PM	R80598
Surr: Dibromofluoromethane	99.8		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
Surr: 1,2-Dichloroethane-d4	98.7		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
Surr: Toluene-d8	105		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
Surr: 4-Bromofluorobenzene	93.0		70-130		%Rec	1	8/17/2021 7:50:34 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	10	1.2	4.2		mg/Kg	1	8/17/2021 7:50:34 PM	G80598
Surr: BFB	93.2	0	70-130		%Rec	1	8/17/2021 7:50:34 PM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	150	4.4	8.8		mg/Kg	1	8/20/2021 11:56:58 AM	61999
Motor Oil Range Organics (MRO)	200	44	44		mg/Kg	1	8/20/2021 11:56:58 AM	61999
Surr: DNOP	121	0	70-130		%Rec	1	8/20/2021 11:56:58 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.87	0.25	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
Barium	460	25	50		mg/Kg	500	8/26/2021 10:03:41 AM	62061
Cadmium	ND	0.25	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
Chromium	19	0.25	0.50		mg/Kg	5	8/27/2021 1:39:01 PM	62061
Lead	19	0.50	1.0		mg/Kg	10	8/30/2021 2:22:37 PM	62061
Selenium	0.75	0.29	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
Silver	ND	0.25	0.50		mg/Kg	5	8/24/2021 7:07:42 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.031	0.0025	0.032	J	mg/Kg	1	8/25/2021 10:56:26 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Acenaphthylene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Anthracene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Azobenzene	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benz(a)anthracene	ND	0.61	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(a)pyrene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(g,h,i)perylene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzo(k)fluoranthene	ND	0.71	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzoic acid	ND	1.2	9.5	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Benzyl alcohol	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-chloroethyl)ether	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.96	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.0	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Bromophenyl phenyl ether	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Carbazole	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Chloro-3-methylphenol	ND	0.80	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Chloroaniline	ND	0.92	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Chloronaphthalene	ND	0.90	2.4	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Di-n-butyl phthalate	ND	2.6	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Dibenzofuran	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,2-Dichlorobenzene	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,4-Dichlorobenzene	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Diethyl phthalate	ND	3.1	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Dimethyl phthalate	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dichlorophenol	ND	0.77	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dimethylphenol	ND	0.67	2.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dinitrophenol	ND	0.48	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,6-Dinitrotoluene	ND	0.97	4.7	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Fluoranthene	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Fluorene	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachlorobenzene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachlorobutadiene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Hexachloroethane	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Isophorone	ND	0.77	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1-Methylnaphthalene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Methylnaphthalene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
3+4-Methylphenol	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
N-Nitrosodi-n-propylamine	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
N-Nitrosodiphenylamine	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Naphthalene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Nitroaniline	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Nitrobenzene	ND	0.78	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2-Nitrophenol	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
4-Nitrophenol	ND	0.78	2.4	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.82	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Phenanthrene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Phenol	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Pyrene	ND	0.72	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
1,2,4-Trichlorobenzene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4,5-Trichlorophenol	ND	0.60	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
2,4,6-Trichlorophenol	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 3:27:36 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 3:27:36 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.58	0.0065	0.017		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Toluene	0.0051	0.0043	0.034	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Ethylbenzene	0.81	0.0082	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Methyl tert-butyl ether (MTBE)	0.039	0.019	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,4-Trimethylbenzene	0.15	0.0047	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,3,5-Trimethylbenzene	ND	0.0075	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dichloroethane (EDC)	ND	0.0076	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dibromoethane (EDB)	ND	0.013	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Naphthalene	0.12	0.012	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1-Methylnaphthalene	0.080	0.038	0.13	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Methylnaphthalene	0.074	0.031	0.13	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Acetone	ND	0.11	0.50		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromobenzene	ND	0.0071	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromodichloromethane	ND	0.0043	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromoform	ND	0.0081	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Bromomethane	ND	0.056	0.10		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Butanone	ND	0.15	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Carbon disulfide	ND	0.014	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Carbon tetrachloride	ND	0.0037	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chlorobenzene	ND	0.0060	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chloroethane	ND	0.013	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chloroform	ND	0.0048	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Chlorotoluene	ND	0.0045	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
cis-1,2-DCE	ND	0.017	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
cis-1,3-Dichloropropene	ND	0.0050	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dibromo-3-chloropropane	ND	0.014	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Dibromochloromethane	ND	0.0054	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Dibromomethane	ND	0.0078	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dichlorobenzene	ND	0.0070	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,3-Dichlorobenzene	ND	0.0063	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,4-Dichlorobenzene	ND	0.0090	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Dichlorodifluoromethane	ND	0.013	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1-Dichloroethane	ND	0.0098	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1-Dichloroethene	ND	0.0072	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2-Dichloropropane	ND	0.0065	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,3-Dichloropropane	ND	0.0074	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2,2-Dichloropropane	ND	0.0048	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1-Dichloropropene	ND	0.0040	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Hexachlorobutadiene	ND	0.023	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
2-Hexanone	ND	0.015	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Isopropylbenzene	0.086	0.0062	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
4-Isopropyltoluene	0.015	0.0086	0.034	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
4-Methyl-2-pentanone	ND	0.039	0.34		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Methylene chloride	ND	0.024	0.10		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
n-Butylbenzene	0.082	0.0090	0.10	J	mg/Kg	1	8/17/2021 8:47:52 PM	R80598
n-Propylbenzene	0.30	0.0054	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
sec-Butylbenzene	0.077	0.028	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Styrene	ND	0.0046	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
tert-Butylbenzene	ND	0.0078	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,1,2-Tetrachloroethane	ND	0.0049	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,2,2-Tetrachloroethane	ND	0.011	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Tetrachloroethene (PCE)	ND	0.0092	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
trans-1,2-DCE	ND	0.0065	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
trans-1,3-Dichloropropene	ND	0.0079	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,3-Trichlorobenzene	ND	0.0052	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,4-Trichlorobenzene	ND	0.012	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,1-Trichloroethane	ND	0.0074	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,1,2-Trichloroethane	ND	0.0084	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Trichloroethene (TCE)	ND	0.0066	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Trichlorofluoromethane	ND	0.0076	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
1,2,3-Trichloropropane	ND	0.014	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
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S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:40:00 PM
Lab ID: 2108721-013 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0064	0.034		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Xylenes, Total	0.14	0.018	0.067		mg/Kg	1	8/17/2021 8:47:52 PM	R80598
Surr: Dibromofluoromethane	87.5		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
Surr: 1,2-Dichloroethane-d4	92.7		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
Surr: Toluene-d8	102		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
Surr: 4-Bromofluorobenzene	103		70-130		%Rec	1	8/17/2021 8:47:52 PM	R80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	100	0.93	3.4		mg/Kg	1	8/17/2021 8:47:52 PM	G80598
Surr: BFB	90.6	0	70-130		%Rec	1	8/17/2021 8:47:52 PM	G80598

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	150	9.2	19		mg/Kg	2	8/20/2021 5:54:55 PM	61999
Motor Oil Range Organics (MRO)	180	93	93		mg/Kg	2	8/20/2021 5:54:55 PM	61999
Surr: DNOP	121	0	70-130		%Rec	2	8/20/2021 5:54:55 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.73	0.24	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
Barium	460	24	49		mg/Kg	500	8/26/2021 10:45:49 AM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
Chromium	16	0.24	0.49		mg/Kg	5	8/27/2021 1:43:35 PM	62061
Lead	14	0.49	0.97		mg/Kg	10	8/30/2021 2:26:04 PM	62061
Selenium	0.78	0.28	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:13:06 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.011	0.0025	0.032	J	mg/Kg	1	8/25/2021 10:58:34 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Acenaphthylene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Aniline	ND	0.67	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Anthracene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Azobenzene	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(a)pyrene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(g,h,i)perylene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzo(k)fluoranthene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzoic acid	ND	1.2	9.7	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-chloroethoxy)methane	ND	0.74	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Butyl benzyl phthalate	ND	0.59	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Carbazole	ND	0.85	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Chloro-3-methylphenol	ND	0.82	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Chloroaniline	ND	0.94	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Chloronaphthalene	ND	0.92	2.4	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Chlorophenyl phenyl ether	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Di-n-octyl phthalate	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,3-Dichlorobenzene	ND	0.69	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,4-Dichlorobenzene	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Diethyl phthalate	ND	3.2	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Dimethyl phthalate	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dinitrophenol	ND	0.49	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,6-Dinitrotoluene	ND	0.99	4.8	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachlorobutadiene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Hexachloroethane	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Isophorone	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1-Methylnaphthalene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Methylnaphthalene	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Methylphenol	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
3+4-Methylphenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
N-Nitrosodi-n-propylamine	ND	0.90	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Naphthalene	ND	0.91	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Nitroaniline	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Nitrobenzene	ND	0.79	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2-Nitrophenol	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Phenanthrene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Phenol	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
1,2,4-Trichlorobenzene	ND	0.89	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4,5-Trichlorophenol	ND	0.62	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 4:09:00 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 4:09:00 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.13	0.0059	0.015		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Toluene	ND	0.0039	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Ethylbenzene	0.062	0.0075	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Methyl tert-butyl ether (MTBE)	0.061	0.017	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,4-Trimethylbenzene	0.011	0.0043	0.031	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,3,5-Trimethylbenzene	ND	0.0069	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dichloroethane (EDC)	ND	0.0070	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Naphthalene	0.035	0.011	0.061	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1-Methylnaphthalene	0.066	0.035	0.12	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Methylnaphthalene	0.074	0.028	0.12	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Acetone	ND	0.10	0.46		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromobenzene	ND	0.0065	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromodichloromethane	ND	0.0039	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromoform	ND	0.0074	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Bromomethane	ND	0.051	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Butanone	ND	0.13	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Carbon tetrachloride	ND	0.0034	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chlorobenzene	ND	0.0055	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chloroethane	ND	0.011	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chloroform	ND	0.0043	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Chloromethane	ND	0.011	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Chlorotoluene	ND	0.0041	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dibromo-3-chloropropane	ND	0.013	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Dibromochloromethane	ND	0.0049	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Dibromomethane	ND	0.0072	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dichlorobenzene	ND	0.0064	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,3-Dichlorobenzene	ND	0.0058	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,4-Dichlorobenzene	ND	0.0082	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1-Dichloroethane	ND	0.0089	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1-Dichloroethene	ND	0.0066	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2-Dichloropropane	ND	0.0060	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,3-Dichloropropane	ND	0.0067	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2,2-Dichloropropane	ND	0.0044	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1-Dichloropropene	ND	0.0037	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Hexachlorobutadiene	ND	0.021	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
2-Hexanone	ND	0.013	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Isopropylbenzene	ND	0.0057	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
4-Isopropyltoluene	ND	0.0079	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Methylene chloride	ND	0.022	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
n-Butylbenzene	ND	0.0082	0.092		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
n-Propylbenzene	0.021	0.0049	0.031	J	mg/Kg	1	8/16/2021 9:58:11 PM	A80534
sec-Butylbenzene	ND	0.025	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Styrene	ND	0.0042	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
tert-Butylbenzene	ND	0.0071	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,1,2-Tetrachloroethane	ND	0.0045	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,2,2-Tetrachloroethane	ND	0.0099	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Tetrachloroethene (PCE)	ND	0.0084	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
trans-1,2-DCE	ND	0.0059	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
trans-1,3-Dichloropropene	ND	0.0072	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,3-Trichlorobenzene	ND	0.0047	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,1-Trichloroethane	ND	0.0068	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,1,2-Trichloroethane	ND	0.0077	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Trichloroethene (TCE)	ND	0.0060	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Trichlorofluoromethane	ND	0.0070	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
1,2,3-Trichloropropane	ND	0.013	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:45:00 PM
Lab ID: 2108721-014 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0058	0.031		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Xylenes, Total	ND	0.016	0.061		mg/Kg	1	8/16/2021 9:58:11 PM	A80534
Surr: Dibromofluoromethane	111		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
Surr: 1,2-Dichloroethane-d4	106		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
Surr: Toluene-d8	96.0		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
Surr: 4-Bromofluorobenzene	89.1		70-130		%Rec	1	8/16/2021 9:58:11 PM	A80534
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	4.2	0.85	3.1		mg/Kg	1	8/16/2021 9:58:11 PM	B80534
Surr: BFB	95.3	0	70-130		%Rec	1	8/16/2021 9:58:11 PM	B80534

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	6.4	4.9	9.9	J	mg/Kg	1	8/18/2021 3:52:48 PM	61999
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/18/2021 3:52:48 PM	61999
Surr: DNOP	121	0	70-130		%Rec	1	8/18/2021 3:52:48 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.73	0.24	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
Barium	420	9.6	19		mg/Kg	200	8/26/2021 10:59:29 AM	62061
Cadmium	ND	0.24	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
Chromium	13	0.24	0.48		mg/Kg	5	8/27/2021 1:48:09 PM	62061
Lead	11	0.24	0.48		mg/Kg	5	8/28/2021 2:41:36 PM	62061
Selenium	0.65	0.28	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
Silver	ND	0.24	0.48		mg/Kg	5	8/24/2021 7:18:30 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.022	0.0025	0.032	J	mg/Kg	1	8/25/2021 11:00:41 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Bis(2-ethylhexyl)phthalate	3.3	2.1	5.0	JD	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/26/2021 3:56:28 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/26/2021 3:56:28 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.019	0.0093	0.024	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Toluene	ND	0.0062	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Ethylbenzene	0.029	0.012	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Methyl tert-butyl ether (MTBE)	0.032	0.027	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,4-Trimethylbenzene	0.026	0.0068	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Naphthalene	0.063	0.018	0.097	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
1-Methylnaphthalene	0.15	0.056	0.19	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Methylnaphthalene	0.13	0.045	0.19	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Acetone	0.17	0.16	0.73	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromobenzene	ND	0.010	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromodichloromethane	0.0094	0.0062	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromoform	ND	0.012	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Bromomethane	ND	0.080	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Butanone	0.45	0.21	0.48	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Carbon disulfide	ND	0.020	0.48		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Carbon tetrachloride	ND	0.0054	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chlorobenzene	ND	0.0087	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chloroethane	ND	0.018	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chloroform	ND	0.0069	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Chlorotoluene	ND	0.0065	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.025	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
cis-1,2-DCE	ND	0.024	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
cis-1,3-Dichloropropene	ND	0.0072	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Dibromochloromethane	ND	0.0078	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Dibromomethane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dichlorobenzene	ND	0.010	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,3-Dichlorobenzene	ND	0.0092	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,4-Dichlorobenzene	ND	0.013	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Dichlorodifluoromethane	ND	0.019	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1-Dichloroethane	ND	0.014	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1-Dichloroethene	ND	0.010	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2-Dichloropropane	ND	0.0094	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,3-Dichloropropane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2,2-Dichloropropane	ND	0.0069	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1-Dichloropropene	ND	0.0059	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Hexachlorobutadiene	ND	0.033	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
2-Hexanone	0.045	0.021	0.48	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Isopropylbenzene	ND	0.0090	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
4-Isopropyltoluene	ND	0.012	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
4-Methyl-2-pentanone	0.066	0.056	0.48	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
Methylene chloride	ND	0.035	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/24/2021 1:02:29 AM	62009
n-Propylbenzene	0.017	0.0078	0.048	J	mg/Kg	1	8/24/2021 1:02:29 AM	62009
sec-Butylbenzene	ND	0.040	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Styrene	ND	0.0066	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
tert-Butylbenzene	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,1,2-Tetrachloroethane	ND	0.0071	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,2,2-Tetrachloroethane	ND	0.016	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Tetrachloroethene (PCE)	ND	0.013	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
trans-1,2-DCE	ND	0.0094	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
trans-1,3-Dichloropropene	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,3-Trichlorobenzene	ND	0.0075	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,1-Trichloroethane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,1,2-Trichloroethane	ND	0.012	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Trichloroethene (TCE)	ND	0.0095	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Trichlorofluoromethane	ND	0.011	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
1,2,3-Trichloropropane	ND	0.020	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:50:00 PM
Lab ID: 2108721-015 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0092	0.048		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Xylenes, Total	ND	0.025	0.097		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Surr: Dibromofluoromethane	96.6		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
Surr: 1,2-Dichloroethane-d4	104		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
Surr: Toluene-d8	103		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
Surr: 4-Bromofluorobenzene	113		70-130		%Rec	1	8/24/2021 1:02:29 AM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	5.0	1.3	4.8		mg/Kg	1	8/24/2021 1:02:29 AM	62009
Surr: BFB	105	0	70-130		%Rec	1	8/24/2021 1:02:29 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	14	4.8	9.7		mg/Kg	1	8/17/2021 9:02:14 PM	61999
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 9:02:14 PM	61999
Surr: DNOP	122	0	70-130		%Rec	1	8/17/2021 9:02:14 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.85	0.26	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
Barium	470	10	21		mg/Kg	200	8/26/2021 11:08:37 AM	62061
Cadmium	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
Chromium	11	0.21	0.42		mg/Kg	4	8/30/2021 12:41:53 PM	62061
Lead	8.6	0.21	0.42		mg/Kg	4	8/30/2021 12:41:53 PM	62061
Selenium	0.74	0.30	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
Silver	ND	0.26	0.52		mg/Kg	5	8/24/2021 7:23:53 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0082	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:02:50 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.86	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Acenaphthylene	ND	0.87	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Anthracene	ND	0.87	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Azobenzene	ND	0.96	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benz(a)anthracene	ND	0.62	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(a)pyrene	ND	0.90	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(g,h,i)perylene	ND	0.98	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzoic acid	ND	1.2	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Benzyl alcohol	ND	0.79	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Bromophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Chloro-3-methylphenol	ND	0.81	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Chloroaniline	ND	0.93	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Chloronaphthalene	ND	0.91	2.4	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.85	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Dibenzofuran	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,2-Dichlorobenzene	ND	0.78	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Dimethyl phthalate	ND	0.89	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dichlorophenol	ND	0.78	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,6-Dinitrotoluene	ND	0.98	4.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Fluoranthene	ND	0.78	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Fluorene	ND	0.86	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachlorobutadiene	ND	0.90	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Hexachloroethane	ND	0.85	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Methylphenol	ND	0.81	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
N-Nitrosodi-n-propylamine	ND	0.89	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Naphthalene	ND	0.90	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Nitroaniline	ND	0.98	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Nitrobenzene	ND	0.79	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2-Nitrophenol	ND	0.83	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
4-Nitrophenol	ND	0.79	2.4	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.83	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Phenanthrene	ND	0.98	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Phenol	ND	0.74	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Pyrene	ND	0.73	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
1,2,4-Trichlorobenzene	ND	0.88	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
2,4,6-Trichlorophenol	ND	0.83	1.9	D	mg/Kg	10	8/25/2021 4:49:50 AM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/25/2021 4:49:50 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.14	0.0075	0.019		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Toluene	ND	0.0050	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Ethylbenzene	0.065	0.0095	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Methyl tert-butyl ether (MTBE)	0.080	0.022	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,4-Trimethylbenzene	ND	0.0055	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,3,5-Trimethylbenzene	ND	0.0087	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dichloroethane (EDC)	ND	0.0089	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dibromoethane (EDB)	ND	0.015	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Naphthalene	0.035	0.014	0.078	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1-Methylnaphthalene	0.091	0.045	0.16	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Methylnaphthalene	0.037	0.036	0.16	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Acetone	ND	0.13	0.58		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromobenzene	ND	0.0082	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromodichloromethane	ND	0.0049	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromoform	ND	0.0094	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Bromomethane	ND	0.064	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Butanone	ND	0.17	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Carbon disulfide	ND	0.016	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Carbon tetrachloride	ND	0.0043	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chlorobenzene	ND	0.0070	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chloroethane	ND	0.015	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chloroform	ND	0.0055	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Chlorotoluene	ND	0.0052	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB3 (7.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
cis-1,2-DCE	ND	0.019	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
cis-1,3-Dichloropropene	ND	0.0058	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Dibromochloromethane	ND	0.0062	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Dibromomethane	ND	0.0091	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dichlorobenzene	ND	0.0081	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,3-Dichlorobenzene	ND	0.0073	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,4-Dichlorobenzene	ND	0.010	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Dichlorodifluoromethane	ND	0.015	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1-Dichloroethane	ND	0.011	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1-Dichloroethene	ND	0.0083	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2-Dichloropropane	ND	0.0076	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,3-Dichloropropane	ND	0.0085	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2,2-Dichloropropane	ND	0.0055	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1-Dichloropropene	ND	0.0047	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Hexachlorobutadiene	ND	0.026	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
2-Hexanone	ND	0.017	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Isopropylbenzene	ND	0.0072	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
4-Isopropyltoluene	ND	0.010	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
4-Methyl-2-pentanone	ND	0.045	0.39		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Methylene chloride	ND	0.028	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
n-Butylbenzene	ND	0.010	0.12		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
n-Propylbenzene	0.022	0.0063	0.039	J	mg/Kg	1	8/17/2021 9:45:05 PM	A80598
sec-Butylbenzene	ND	0.032	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Styrene	ND	0.0053	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
tert-Butylbenzene	ND	0.0090	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0057	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
trans-1,2-DCE	ND	0.0075	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
trans-1,3-Dichloropropene	ND	0.0091	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,3-Trichlorobenzene	ND	0.0060	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,1-Trichloroethane	ND	0.0086	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,1,2-Trichloroethane	ND	0.0097	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Trichloroethene (TCE)	ND	0.0076	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Trichlorofluoromethane	ND	0.0088	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
1,2,3-Trichloropropane	ND	0.016	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 12:55:00 PM
Lab ID: 2108721-016 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0074	0.039		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Xylenes, Total	ND	0.020	0.078		mg/Kg	1	8/17/2021 9:45:05 PM	A80598
Surr: Dibromofluoromethane	99.4		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
Surr: 1,2-Dichloroethane-d4	96.3		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
Surr: Toluene-d8	103		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
Surr: 4-Bromofluorobenzene	90.5		70-130		%Rec	1	8/17/2021 9:45:05 PM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	3.0	1.1	3.9	J	mg/Kg	1	8/17/2021 1:18:21 AM	B80534
Surr: BFB	96.0	0	70-130		%Rec	1	8/17/2021 1:18:21 AM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	6.3	4.5	9.1	J	mg/Kg	1	8/17/2021 9:12:17 PM	61999
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	8/17/2021 9:12:17 PM	61999
Surr: DNOP	120	0	70-130		%Rec	1	8/17/2021 9:12:17 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.82	0.24	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
Barium	460	9.7	19		mg/Kg	200	8/26/2021 11:17:44 AM	62061
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
Chromium	12	0.19	0.39		mg/Kg	4	8/30/2021 12:45:20 PM	62061
Lead	7.7	0.19	0.39		mg/Kg	4	8/30/2021 12:45:20 PM	62061
Selenium	0.61	0.28	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 7:29:17 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.012	0.0027	0.033	J	mg/Kg	1	8/25/2021 11:04:59 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.088	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Acenaphthylene	ND	0.089	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Aniline	ND	0.068	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Anthracene	ND	0.089	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Azobenzene	ND	0.098	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benz(a)anthracene	ND	0.063	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(a)pyrene	ND	0.093	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(b)fluoranthene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzo(k)fluoranthene	ND	0.074	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzoic acid	ND	0.12	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Benzyl alcohol	ND	0.080	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-chloroethoxy)methane	ND	0.075	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Bis(2-ethylhexyl)phthalate	0.86	0.21	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Butyl benzyl phthalate	ND	0.060	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Carbazole	ND	0.086	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Chloro-3-methylphenol	ND	0.083	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Chloroaniline	ND	0.096	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Chloronaphthalene	ND	0.093	0.25		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Chlorophenyl phenyl ether	ND	0.083	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.087	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Di-n-butyl phthalate	ND	0.27	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Di-n-octyl phthalate	ND	0.13	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,2-Dichlorobenzene	ND	0.079	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,3-Dichlorobenzene	ND	0.070	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,4-Dichlorobenzene	ND	0.083	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Diethyl phthalate	ND	0.32	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Dimethyl phthalate	ND	0.091	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dichlorophenol	ND	0.080	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dimethylphenol	ND	0.070	0.29		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4,6-Dinitro-2-methylphenol	ND	0.083	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dinitrophenol	ND	0.049	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4-Dinitrotoluene	ND	0.12	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,6-Dinitrotoluene	ND	0.10	0.49		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Fluoranthene	ND	0.079	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Fluorene	ND	0.088	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachlorobenzene	ND	0.087	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachlorobutadiene	ND	0.092	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Hexachloroethane	ND	0.087	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Isophorone	ND	0.080	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1-Methylnaphthalene	ND	0.090	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Methylnaphthalene	ND	0.081	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Methylphenol	ND	0.083	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
3+4-Methylphenol	ND	0.081	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
N-Nitrosodi-n-propylamine	ND	0.091	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Naphthalene	ND	0.092	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
3-Nitroaniline	ND	0.11	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Nitroaniline	ND	0.13	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Nitrobenzene	ND	0.081	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2-Nitrophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
4-Nitrophenol	ND	0.081	0.25		mg/Kg	1	8/25/2021 5:31:14 AM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB3 (8')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.085	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Phenanthrene	ND	0.10	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Phenol	ND	0.076	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Pyrene	ND	0.074	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Pyridine	ND	0.16	0.39		mg/Kg	1	8/25/2021 5:31:14 AM	62052
1,2,4-Trichlorobenzene	ND	0.090	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
2,4,6-Trichlorophenol	ND	0.085	0.20		mg/Kg	1	8/25/2021 5:31:14 AM	62052
Surr: 2-Fluorophenol	40.6		20.3-74.1		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: Phenol-d5	46.5		23.1-92.7		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: 2,4,6-Tribromophenol	55.8		17.3-122		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: Nitrobenzene-d5	39.1		24.7-73.2		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: 2-Fluorobiphenyl	39.6		21.5-90.1		%Rec	1	8/25/2021 5:31:14 AM	62052
Surr: 4-Terphenyl-d14	78.3		15-140		%Rec	1	8/25/2021 5:31:14 AM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.066	0.0078	0.020		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Toluene	ND	0.0052	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Ethylbenzene	0.026	0.0098	0.040	J	mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Methyl tert-butyl ether (MTBE)	0.043	0.023	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,4-Trimethylbenzene	ND	0.0057	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,3,5-Trimethylbenzene	ND	0.0091	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dichloroethane (EDC)	ND	0.0092	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dibromoethane (EDB)	ND	0.016	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Naphthalene	ND	0.015	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1-Methylnaphthalene	ND	0.046	0.16		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Methylnaphthalene	ND	0.037	0.16		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Acetone	ND	0.13	0.60		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromobenzene	ND	0.0086	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromodichloromethane	ND	0.0051	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromoform	ND	0.0097	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Butanone	ND	0.17	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Carbon disulfide	ND	0.017	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Carbon tetrachloride	ND	0.0045	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chlorobenzene	ND	0.0073	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chloroethane	ND	0.015	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chloroform	ND	0.0057	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Chlorotoluene	ND	0.0054	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB3 (8')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
cis-1,2-DCE	ND	0.020	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
cis-1,3-Dichloropropene	ND	0.0060	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Dibromochloromethane	ND	0.0065	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Dibromomethane	ND	0.0094	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dichlorobenzene	ND	0.0084	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,3-Dichlorobenzene	ND	0.0076	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,4-Dichlorobenzene	ND	0.011	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Dichlorodifluoromethane	ND	0.016	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1-Dichloroethane	ND	0.012	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1-Dichloroethene	ND	0.0086	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2-Dichloropropane	ND	0.0079	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,3-Dichloropropane	ND	0.0089	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2,2-Dichloropropane	ND	0.0057	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1-Dichloropropene	ND	0.0049	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Hexachlorobutadiene	ND	0.027	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
2-Hexanone	ND	0.018	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Isopropylbenzene	ND	0.0075	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
4-Isopropyltoluene	ND	0.010	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
4-Methyl-2-pentanone	ND	0.047	0.40		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
n-Butylbenzene	ND	0.011	0.12		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
n-Propylbenzene	0.0093	0.0065	0.040	J	mg/Kg	1	8/17/2021 11:10:55 PM	A80598
sec-Butylbenzene	ND	0.033	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Styrene	ND	0.0055	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
tert-Butylbenzene	ND	0.0093	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0059	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
trans-1,2-DCE	ND	0.0078	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
trans-1,3-Dichloropropene	ND	0.0095	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,3-Trichlorobenzene	ND	0.0062	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,1-Trichloroethane	ND	0.0089	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,1,2-Trichloroethane	ND	0.010	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Trichloroethene (TCE)	ND	0.0079	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Trichlorofluoromethane	ND	0.0091	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
1,2,3-Trichloropropane	ND	0.017	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB3 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 1:00:00 PM
Lab ID: 2108721-017 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0077	0.040		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Xylenes, Total	ND	0.021	0.081		mg/Kg	1	8/17/2021 11:10:55 PM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
Surr: 1,2-Dichloroethane-d4	96.5		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
Surr: Toluene-d8	103		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
Surr: 4-Bromofluorobenzene	93.5		70-130		%Rec	1	8/17/2021 11:10:55 PM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	1.5	1.1	4.0	J	mg/Kg	1	8/17/2021 1:46:56 AM	B80534
Surr: BFB	94.8	0	70-130		%Rec	1	8/17/2021 1:46:56 AM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	4000	90	180		mg/Kg	20	8/19/2021 6:55:30 AM	61999
Motor Oil Range Organics (MRO)	1700	910	910		mg/Kg	20	8/19/2021 6:55:30 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 6:55:30 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	2.0	1.0	2.0	J	mg/Kg	20	8/27/2021 2:15:35 PM	62061
Barium	450	25	50		mg/Kg	500	8/26/2021 11:40:32 AM	62061
Cadmium	ND	1.0	2.0		mg/Kg	20	8/27/2021 2:15:35 PM	62061
Chromium	87	1.0	2.0		mg/Kg	20	8/27/2021 2:15:35 PM	62061
Lead	9.3	1.0	2.0		mg/Kg	20	8/28/2021 2:58:55 PM	62061
Selenium	2.0	1.1	2.0	J	mg/Kg	20	8/27/2021 2:15:35 PM	62061
Silver	ND	1.0	2.0		mg/Kg	20	8/27/2021 2:15:35 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.063	0.0027	0.034		mg/Kg	1	8/25/2021 11:07:10 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Acenaphthylene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Aniline	ND	17	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Anthracene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Azobenzene	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benz(a)anthracene	ND	16	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(a)pyrene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(b)fluoranthene	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(g,h,i)perylene	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzo(k)fluoranthene	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzoic acid	ND	31	250	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Benzyl alcohol	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-chloroethoxy)methane	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-chloroethyl)ether	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-chloroisopropyl)ether	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Bis(2-ethylhexyl)phthalate	ND	53	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Bromophenyl phenyl ether	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Butyl benzyl phthalate	ND	15	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Carbazole	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Chloro-3-methylphenol	ND	21	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Chloronaphthalene	ND	23	62	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Chlorophenol	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Chlorophenyl phenyl ether	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Di-n-butyl phthalate	ND	69	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Di-n-octyl phthalate	ND	32	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Dibenz(a,h)anthracene	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Dibenzofuran	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,2-Dichlorobenzene	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,3-Dichlorobenzene	ND	18	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,4-Dichlorobenzene	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
3,3´-Dichlorobenzidine	ND	37	62	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Diethyl phthalate	ND	80	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Dimethyl phthalate	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dichlorophenol	ND	20	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dimethylphenol	ND	18	74	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4,6-Dinitro-2-methylphenol	ND	21	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dinitrophenol	ND	12	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4-Dinitrotoluene	ND	30	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Fluoranthene	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Fluorene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachlorobenzene	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachlorobutadiene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachlorocyclopentadiene	ND	28	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Hexachloroethane	ND	22	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Indeno(1,2,3-cd)pyrene	ND	28	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Isophorone	ND	20	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1-Methylnaphthalene	32	23	49	JD	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Methylnaphthalene	41	20	49	JD	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Methylphenol	ND	21	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
3+4-Methylphenol	ND	20	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
N-Nitrosodi-n-propylamine	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
N-Nitrosodimethylamine	ND	37	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
N-Nitrosodiphenylamine	ND	26	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Naphthalene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Nitroaniline	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
3-Nitroaniline	ND	29	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Nitroaniline	ND	32	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Nitrobenzene	ND	20	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2-Nitrophenol	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
4-Nitrophenol	ND	20	62	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Phenanthrene	ND	25	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Phenol	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Pyrene	ND	19	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Pyridine	ND	40	99	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
1,2,4-Trichlorobenzene	ND	23	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4,5-Trichlorophenol	ND	16	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
2,4,6-Trichlorophenol	ND	21	49	D	mg/Kg	10	8/30/2021 4:50:37 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 4:50:37 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.87	0.047	0.12		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Toluene	ND	0.032	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Ethylbenzene	ND	0.060	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Methyl tert-butyl ether (MTBE)	0.53	0.14	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,4-Trimethylbenzene	1.4	0.035	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,3,5-Trimethylbenzene	0.57	0.055	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dichloroethane (EDC)	ND	0.056	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dibromoethane (EDB)	ND	0.096	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Naphthalene	4.2	0.091	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1-Methylnaphthalene	22	0.28	0.98		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Methylnaphthalene	29	2.3	9.8		mg/Kg	50	8/18/2021 2:01:10 PM	R80646
Acetone	ND	0.80	3.7		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromobenzene	ND	0.052	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromodichloromethane	ND	0.031	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromoform	ND	0.059	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Bromomethane	ND	0.41	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Butanone	ND	1.1	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Carbon disulfide	ND	0.10	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Carbon tetrachloride	ND	0.027	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chlorobenzene	ND	0.044	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chloroethane	ND	0.092	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chloroform	ND	0.035	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Chloromethane	ND	0.086	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Chlorotoluene	ND	0.033	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.13	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
cis-1,2-DCE	ND	0.12	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
cis-1,3-Dichloropropene	ND	0.036	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dibromo-3-chloropropane	ND	0.11	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Dibromochloromethane	ND	0.039	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Dibromomethane	ND	0.057	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dichlorobenzene	ND	0.051	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,3-Dichlorobenzene	ND	0.046	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,4-Dichlorobenzene	ND	0.066	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Dichlorodifluoromethane	ND	0.095	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1-Dichloroethane	ND	0.071	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1-Dichloroethene	ND	0.053	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2-Dichloropropane	ND	0.048	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,3-Dichloropropane	ND	0.054	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2,2-Dichloropropane	ND	0.035	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1-Dichloropropene	ND	0.030	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Hexachlorobutadiene	ND	0.17	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
2-Hexanone	ND	0.11	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Isopropylbenzene	ND	0.045	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
4-Isopropyltoluene	0.074	0.063	0.25	J	mg/Kg	5	8/17/2021 11:39:30 PM	A80598
4-Methyl-2-pentanone	ND	0.29	2.5		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Methylene chloride	ND	0.18	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
n-Butylbenzene	ND	0.065	0.74		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
n-Propylbenzene	ND	0.040	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
sec-Butylbenzene	ND	0.20	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Styrene	ND	0.033	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
tert-Butylbenzene	ND	0.057	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,1,2-Tetrachloroethane	ND	0.036	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,2,2-Tetrachloroethane	ND	0.079	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Tetrachloroethene (PCE)	ND	0.067	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
trans-1,2-DCE	ND	0.047	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
trans-1,3-Dichloropropene	ND	0.057	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,3-Trichlorobenzene	ND	0.038	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,4-Trichlorobenzene	ND	0.085	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,1-Trichloroethane	ND	0.054	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,1,2-Trichloroethane	ND	0.061	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Trichloroethene (TCE)	ND	0.048	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Trichlorofluoromethane	ND	0.056	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
1,2,3-Trichloropropane	ND	0.10	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:00:00 PM
Lab ID: 2108721-018 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.047	0.25		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Xylenes, Total	0.64	0.13	0.49		mg/Kg	5	8/17/2021 11:39:30 PM	A80598
Surr: Dibromofluoromethane	95.8		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
Surr: Toluene-d8	104		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
Surr: 4-Bromofluorobenzene	94.8		70-130		%Rec	5	8/17/2021 11:39:30 PM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	190	6.8	25		mg/Kg	5	8/17/2021 2:15:30 AM	B80534
Surr: BFB	94.4	0	70-130		%Rec	5	8/17/2021 2:15:30 AM	B80534

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	3300	93	190		mg/Kg	20	8/19/2021 7:42:25 AM	61999
Motor Oil Range Organics (MRO)	3000	940	940		mg/Kg	20	8/19/2021 7:42:25 AM	61999
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 7:42:25 AM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.5	0.98	2.0	J	mg/Kg	20	8/27/2021 2:24:43 PM	62061
Barium	930	25	49		mg/Kg	500	8/26/2021 11:54:09 AM	62061
Cadmium	ND	0.98	2.0		mg/Kg	20	8/27/2021 2:24:43 PM	62061
Chromium	20	0.25	0.49		mg/Kg	5	8/30/2021 12:59:15 PM	62061
Lead	18	0.98	2.0		mg/Kg	20	8/28/2021 3:02:23 PM	62061
Selenium	2.9	1.1	2.0		mg/Kg	20	8/27/2021 2:24:43 PM	62061
Silver	ND	0.98	2.0		mg/Kg	20	8/27/2021 2:24:43 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.068	0.0027	0.033		mg/Kg	1	8/25/2021 11:09:20 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Acenaphthylene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Aniline	ND	17	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Anthracene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Azobenzene	ND	24	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benz(a)anthracene	ND	16	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(a)pyrene	ND	23	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(b)fluoranthene	ND	26	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(g,h,i)perylene	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzo(k)fluoranthene	ND	18	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzoic acid	ND	30	240	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Benzyl alcohol	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-chloroethoxy)methane	ND	19	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-chloroethyl)ether	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-chloroisopropyl)ether	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Bis(2-ethylhexyl)phthalate	ND	52	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Bromophenyl phenyl ether	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Butyl benzyl phthalate	ND	15	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Carbazole	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Chloro-3-methylphenol	ND	20	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Chloronaphthalene	ND	23	61	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Chlorophenol	ND	26	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Chlorophenyl phenyl ether	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Di-n-butyl phthalate	ND	68	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Di-n-octyl phthalate	ND	31	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Dibenz(a,h)anthracene	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Dibenzofuran	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,2-Dichlorobenzene	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,3-Dichlorobenzene	ND	17	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,4-Dichlorobenzene	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
3,3´-Dichlorobenzidine	ND	36	61	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Diethyl phthalate	ND	79	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Dimethyl phthalate	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dichlorophenol	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dimethylphenol	ND	17	73	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4,6-Dinitro-2-methylphenol	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dinitrophenol	ND	12	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4-Dinitrotoluene	ND	29	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Fluoranthene	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Fluorene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachlorobenzene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachlorobutadiene	ND	23	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachlorocyclopentadiene	ND	27	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Hexachloroethane	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Indeno(1,2,3-cd)pyrene	ND	28	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Isophorone	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1-Methylnaphthalene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Methylnaphthalene	26	20	48	JD	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Methylphenol	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
3+4-Methylphenol	ND	20	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
N-Nitrosodi-n-propylamine	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
N-Nitrosodimethylamine	ND	36	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
N-Nitrosodiphenylamine	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Naphthalene	ND	23	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Nitroaniline	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
3-Nitroaniline	ND	28	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Nitroaniline	ND	31	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Nitrobenzene	ND	20	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2-Nitrophenol	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
4-Nitrophenol	ND	20	61	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Phenanthrene	ND	25	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Phenol	ND	19	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Pyrene	ND	18	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Pyridine	ND	39	97	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
1,2,4-Trichlorobenzene	ND	22	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4,5-Trichlorophenol	ND	15	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
2,4,6-Trichlorophenol	ND	21	48	D	mg/Kg	10	8/30/2021 5:32:05 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 5:32:05 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.7	0.047	0.12		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Toluene	0.041	0.031	0.24	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Ethylbenzene	0.40	0.059	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Methyl tert-butyl ether (MTBE)	0.50	0.14	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,4-Trimethylbenzene	1.9	0.034	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,3,5-Trimethylbenzene	0.68	0.054	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.055	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.095	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Naphthalene	4.7	0.090	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1-Methylnaphthalene	17	0.28	0.97		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Methylnaphthalene	32	2.2	9.7		mg/Kg	50	8/18/2021 2:29:57 PM	R80646
Acetone	ND	0.79	3.6		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromobenzene	ND	0.051	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromodichloromethane	ND	0.031	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromoform	ND	0.058	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Bromomethane	ND	0.40	0.73		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Butanone	ND	1.1	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Carbon disulfide	ND	0.10	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Carbon tetrachloride	ND	0.027	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chlorobenzene	ND	0.044	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chloroethane	ND	0.091	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chloroform	ND	0.034	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Chloromethane	ND	0.085	0.73		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Chlorotoluene	ND	0.032	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.13	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
cis-1,2-DCE	ND	0.12	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
cis-1,3-Dichloropropene	ND	0.036	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.10	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Dibromochloromethane	ND	0.039	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Dibromomethane	ND	0.057	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dichlorobenzene	ND	0.050	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,3-Dichlorobenzene	ND	0.046	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,4-Dichlorobenzene	ND	0.065	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Dichlorodifluoromethane	ND	0.094	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1-Dichloroethane	ND	0.071	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1-Dichloroethene	ND	0.052	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2-Dichloropropane	ND	0.047	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,3-Dichloropropane	ND	0.053	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2,2-Dichloropropane	ND	0.034	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1-Dichloropropene	ND	0.029	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Hexachlorobutadiene	ND	0.16	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
2-Hexanone	ND	0.11	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Isopropylbenzene	ND	0.045	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
4-Isopropyltoluene	0.11	0.062	0.24	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
4-Methyl-2-pentanone	ND	0.28	2.4		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Methylene chloride	ND	0.18	0.73		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
n-Butylbenzene	0.085	0.065	0.73	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
n-Propylbenzene	0.094	0.039	0.24	J	mg/Kg	5	8/18/2021 12:36:38 AM	A80598
sec-Butylbenzene	ND	0.20	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Styrene	ND	0.033	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
tert-Butylbenzene	ND	0.056	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.036	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.078	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Tetrachloroethene (PCE)	ND	0.066	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
trans-1,2-DCE	ND	0.047	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
trans-1,3-Dichloropropene	ND	0.057	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,3-Trichlorobenzene	ND	0.037	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,4-Trichlorobenzene	ND	0.084	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,1-Trichloroethane	ND	0.053	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,1,2-Trichloroethane	ND	0.061	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Trichloroethene (TCE)	ND	0.047	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Trichlorofluoromethane	ND	0.055	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
1,2,3-Trichloropropane	ND	0.10	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:03:00 PM
Lab ID: 2108721-019 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.046	0.24		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Xylenes, Total	1.8	0.13	0.48		mg/Kg	5	8/18/2021 12:36:38 AM	A80598
Surr: Dibromofluoromethane	97.6		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
Surr: 1,2-Dichloroethane-d4	98.5		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
Surr: Toluene-d8	102		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
Surr: 4-Bromofluorobenzene	94.2		70-130		%Rec	5	8/18/2021 12:36:38 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	230	6.7	24		mg/Kg	5	8/18/2021 12:36:38 AM	G80598
Surr: BFB	97.8	0	70-130		%Rec	5	8/18/2021 12:36:38 AM	G80598

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	280	24	48		mg/Kg	5	8/20/2021 5:29:32 PM	61999
Motor Oil Range Organics (MRO)	310	240	240		mg/Kg	5	8/20/2021 5:29:32 PM	61999
Surr: DNOP	113	0	70-130		%Rec	5	8/20/2021 5:29:32 PM	61999
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.97	0.098	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
Barium	490	24	49		mg/Kg	500	8/26/2021 12:07:48 PM	62061
Cadmium	ND	0.098	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
Chromium	19	0.24	0.49		mg/Kg	5	8/28/2021 3:05:50 PM	62061
Lead	12	0.49	0.98		mg/Kg	10	8/30/2021 2:29:31 PM	62061
Selenium	1.5	0.11	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
Silver	ND	0.098	0.20		mg/Kg	2	8/27/2021 2:47:39 PM	62061
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0084	0.0026	0.032	J	mg/Kg	1	8/25/2021 11:15:44 AM	62142
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Acenaphthylene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Anthracene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzoic acid	ND	1.2	10	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.2	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Dimethyl phthalate	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Methylnaphthalene	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
N-Nitrosodi-n-propylamine	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/30/2021 6:13:41 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 6:13:41 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.36	0.0077	0.020		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Toluene	ND	0.0052	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Ethylbenzene	0.36	0.0098	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Methyl tert-butyl ether (MTBE)	1.3	0.023	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,4-Trimethylbenzene	0.031	0.0057	0.040	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0090	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0092	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.016	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Naphthalene	0.10	0.015	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1-Methylnaphthalene	0.16	0.046	0.16	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Methylnaphthalene	0.27	0.037	0.16		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Acetone	ND	0.13	0.60		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromobenzene	ND	0.0085	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromodichloromethane	ND	0.0051	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromoform	ND	0.0097	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Butanone	ND	0.17	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Carbon disulfide	ND	0.017	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Carbon tetrachloride	ND	0.0045	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chlorobenzene	ND	0.0072	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chloroethane	ND	0.015	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chloroform	ND	0.0057	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Chlorotoluene	ND	0.0054	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB4 (2.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
cis-1,2-DCE	ND	0.020	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
cis-1,3-Dichloropropene	ND	0.0060	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Dibromochloromethane	ND	0.0064	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Dibromomethane	ND	0.0094	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dichlorobenzene	ND	0.0084	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,3-Dichlorobenzene	ND	0.0076	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,4-Dichlorobenzene	ND	0.011	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Dichlorodifluoromethane	ND	0.016	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1-Dichloroethane	ND	0.012	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1-Dichloroethene	ND	0.0086	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2-Dichloropropane	ND	0.0078	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,3-Dichloropropane	ND	0.0088	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2,2-Dichloropropane	ND	0.0057	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1-Dichloropropene	ND	0.0049	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Hexachlorobutadiene	ND	0.027	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
2-Hexanone	ND	0.018	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Isopropylbenzene	0.037	0.0075	0.040	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
4-Isopropyltoluene	ND	0.010	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
4-Methyl-2-pentanone	ND	0.047	0.40		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
n-Butylbenzene	0.039	0.011	0.12	J	mg/Kg	1	8/18/2021 3:28:33 AM	A80598
n-Propylbenzene	0.12	0.0065	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
sec-Butylbenzene	ND	0.033	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Styrene	ND	0.0055	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
tert-Butylbenzene	ND	0.0093	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0059	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
trans-1,2-DCE	ND	0.0078	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
trans-1,3-Dichloropropene	ND	0.0094	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0062	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,1-Trichloroethane	ND	0.0089	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,1,2-Trichloroethane	ND	0.010	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Trichloroethene (TCE)	ND	0.0079	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Trichlorofluoromethane	ND	0.0091	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
1,2,3-Trichloropropane	ND	0.017	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:05:00 PM
Lab ID: 2108721-020 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0077	0.040		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Xylenes, Total	ND	0.021	0.080		mg/Kg	1	8/18/2021 3:28:33 AM	A80598
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
Surr: Toluene-d8	101		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
Surr: 4-Bromofluorobenzene	93.7		70-130		%Rec	1	8/18/2021 3:28:33 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	16	1.1	4.0		mg/Kg	1	8/18/2021 3:28:33 AM	G80598
Surr: BFB	94.2	0	70-130		%Rec	1	8/18/2021 3:28:33 AM	G80598

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PQL	Practical Quanitative Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.8	9.6		mg/Kg	1	8/17/2021 2:26:44 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 2:26:44 PM	62000
Surr: DNOP	107	0	70-130		%Rec	1	8/17/2021 2:26:44 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.85	0.50	1.0	J	mg/Kg	10	8/26/2021 4:08:15 PM	62062
Barium	350	25	50		mg/Kg	500	8/26/2021 12:21:26 PM	62062
Cadmium	ND	0.50	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
Chromium	19	0.50	1.0		mg/Kg	10	8/27/2021 4:33:38 PM	62062
Lead	12	0.50	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
Selenium	1.4	0.57	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
Silver	ND	0.50	1.0		mg/Kg	10	8/26/2021 4:08:15 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0063	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:17:52 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.087	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Acenaphthylene	ND	0.088	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Aniline	ND	0.067	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Anthracene	ND	0.088	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Azobenzene	ND	0.097	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benz(a)anthracene	ND	0.062	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(a)pyrene	ND	0.091	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(b)fluoranthene	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(g,h,i)perylene	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzo(k)fluoranthene	ND	0.073	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzoic acid	ND	0.12	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Benzyl alcohol	ND	0.080	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-chloroethoxy)methane	ND	0.074	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-chloroethyl)ether	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Bis(2-ethylhexyl)phthalate	ND	0.21	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Bromophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Butyl benzyl phthalate	ND	0.059	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Carbazole	ND	0.085	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Chloro-3-methylphenol	ND	0.082	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Chloroaniline	ND	0.094	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Chloronaphthalene	ND	0.092	0.24		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Chlorophenyl phenyl ether	ND	0.082	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017

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S	% Recovery outside of range due to dilution or matrix
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.086	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Di-n-butyl phthalate	ND	0.27	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Di-n-octyl phthalate	ND	0.12	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Dibenz(a,h)anthracene	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Dibenzofuran	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,2-Dichlorobenzene	ND	0.078	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,3-Dichlorobenzene	ND	0.069	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,4-Dichlorobenzene	ND	0.082	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
3,3´-Dichlorobenzidine	ND	0.15	0.24		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Diethyl phthalate	ND	0.32	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Dimethyl phthalate	ND	0.090	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dichlorophenol	ND	0.079	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dimethylphenol	ND	0.069	0.29		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.082	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dinitrophenol	ND	0.049	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4-Dinitrotoluene	ND	0.12	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,6-Dinitrotoluene	ND	0.099	0.48		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Fluoranthene	ND	0.078	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Fluorene	ND	0.087	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachlorobenzene	ND	0.086	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachlorobutadiene	ND	0.091	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Hexachloroethane	ND	0.086	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Isophorone	ND	0.079	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1-Methylnaphthalene	ND	0.089	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Methylnaphthalene	ND	0.080	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Methylphenol	ND	0.082	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
3+4-Methylphenol	ND	0.080	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
N-Nitrosodi-n-propylamine	ND	0.090	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
N-Nitrosodiphenylamine	ND	0.10	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Naphthalene	ND	0.091	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Nitroaniline	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Nitroaniline	ND	0.12	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Nitrobenzene	ND	0.080	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2-Nitrophenol	ND	0.084	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
4-Nitrophenol	ND	0.080	0.24		mg/Kg	1	8/23/2021 6:25:35 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB4 (5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.084	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Phenanthrene	ND	0.099	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Phenol	ND	0.075	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Pyrene	ND	0.074	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Pyridine	ND	0.16	0.39		mg/Kg	1	8/23/2021 6:25:35 PM	62017
1,2,4-Trichlorobenzene	ND	0.089	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4,5-Trichlorophenol	ND	0.062	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
2,4,6-Trichlorophenol	ND	0.084	0.19		mg/Kg	1	8/23/2021 6:25:35 PM	62017
Surr: 2-Fluorophenol	44.2		20.3-74.1		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: Phenol-d5	52.7		23.1-92.7		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: 2,4,6-Tribromophenol	63.6		17.3-122		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: Nitrobenzene-d5	22.7		24.7-73.2	S	%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: 2-Fluorobiphenyl	38.5		21.5-90.1		%Rec	1	8/23/2021 6:25:35 PM	62017
Surr: 4-Terphenyl-d14	88.5		15-140		%Rec	1	8/23/2021 6:25:35 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.63	0.0050	0.013		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Toluene	ND	0.0034	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Ethylbenzene	0.20	0.0064	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Methyl tert-butyl ether (MTBE)	1.5	0.015	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,4-Trimethylbenzene	ND	0.0037	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0059	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0060	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.010	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Naphthalene	0.017	0.0097	0.052	J	mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1-Methylnaphthalene	ND	0.030	0.10		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Methylnaphthalene	ND	0.024	0.10		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Acetone	ND	0.085	0.39		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromobenzene	ND	0.0055	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromodichloromethane	ND	0.0033	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromoform	ND	0.0063	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Bromomethane	ND	0.043	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Butanone	ND	0.11	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Carbon disulfide	ND	0.011	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Carbon tetrachloride	ND	0.0029	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chlorobenzene	ND	0.0047	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chloroethane	ND	0.0098	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chloroform	ND	0.0037	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Chloromethane	ND	0.0092	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Chlorotoluene	ND	0.0035	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB4 (5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
cis-1,2-DCE	ND	0.013	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
cis-1,3-Dichloropropene	ND	0.0039	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.011	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Dibromochloromethane	ND	0.0042	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Dibromomethane	ND	0.0061	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dichlorobenzene	ND	0.0054	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,3-Dichlorobenzene	ND	0.0049	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,4-Dichlorobenzene	ND	0.0070	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Dichlorodifluoromethane	ND	0.010	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1-Dichloroethane	ND	0.0076	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1-Dichloroethene	ND	0.0056	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2-Dichloropropane	ND	0.0051	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,3-Dichloropropane	ND	0.0057	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2,2-Dichloropropane	ND	0.0037	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1-Dichloropropene	ND	0.0032	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Hexachlorobutadiene	ND	0.018	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
2-Hexanone	ND	0.011	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Isopropylbenzene	0.016	0.0048	0.026	J	mg/Kg	1	8/18/2021 3:57:12 AM	A80598
4-Isopropyltoluene	ND	0.0067	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
4-Methyl-2-pentanone	ND	0.030	0.26		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Methylene chloride	ND	0.019	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
n-Butylbenzene	ND	0.0070	0.078		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
n-Propylbenzene	0.046	0.0042	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
sec-Butylbenzene	ND	0.022	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Styrene	ND	0.0036	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
tert-Butylbenzene	ND	0.0060	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0038	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.0085	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Tetrachloroethene (PCE)	ND	0.0072	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
trans-1,2-DCE	ND	0.0050	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
trans-1,3-Dichloropropene	ND	0.0061	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0040	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,4-Trichlorobenzene	ND	0.0091	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,1-Trichloroethane	ND	0.0058	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,1,2-Trichloroethane	ND	0.0065	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Trichloroethene (TCE)	ND	0.0051	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Trichlorofluoromethane	ND	0.0059	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
1,2,3-Trichloropropane	ND	0.011	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 7:40:00 AM
Lab ID: 2108721-021 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0050	0.026		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Xylenes, Total	ND	0.014	0.052		mg/Kg	1	8/18/2021 3:57:12 AM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
Surr: Toluene-d8	105		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
Surr: 4-Bromofluorobenzene	86.9		70-130		%Rec	1	8/18/2021 3:57:12 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	9.0	0.73	2.6		mg/Kg	1	8/17/2021 3:41:17 AM	B80534
Surr: BFB	97.0	0	70-130		%Rec	1	8/17/2021 3:41:17 AM	B80534

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Qualifiers:

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D	Sample Diluted Due to Matrix
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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.6	9.3		mg/Kg	1	8/17/2021 2:56:32 PM	62000
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/17/2021 2:56:32 PM	62000
Surr: DNOP	103	0	70-130		%Rec	1	8/17/2021 2:56:32 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.97	0.97	1.9	J	mg/Kg	20	8/26/2021 4:12:48 PM	62062
Barium	300	9.7	19		mg/Kg	200	8/26/2021 12:44:13 PM	62062
Cadmium	ND	0.97	1.9		mg/Kg	20	8/26/2021 4:12:48 PM	62062
Chromium	21	0.97	1.9		mg/Kg	20	8/27/2021 4:38:12 PM	62062
Lead	14	0.97	1.9		mg/Kg	20	8/26/2021 4:12:48 PM	62062
Selenium	1.7	1.1	1.9	J	mg/Kg	20	8/26/2021 4:12:48 PM	62062
Silver	ND	0.97	1.9		mg/Kg	20	8/26/2021 4:12:48 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0068	0.0025	0.031	J	mg/Kg	1	8/25/2021 11:20:00 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.089	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Acenaphthylene	ND	0.090	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Aniline	ND	0.069	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Anthracene	ND	0.090	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Azobenzene	ND	0.099	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benz(a)anthracene	ND	0.064	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(a)pyrene	ND	0.094	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(b)fluoranthene	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzo(k)fluoranthene	ND	0.075	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzoic acid	ND	0.12	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Benzyl alcohol	ND	0.081	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-chloroethoxy)methane	ND	0.076	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Bis(2-ethylhexyl)phthalate	ND	0.21	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Butyl benzyl phthalate	ND	0.060	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Carbazole	ND	0.087	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Chloro-3-methylphenol	ND	0.084	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Chloroaniline	ND	0.097	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Chloronaphthalene	ND	0.094	0.25		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Chlorophenyl phenyl ether	ND	0.084	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.088	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Di-n-butyl phthalate	ND	0.28	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Di-n-octyl phthalate	ND	0.13	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,2-Dichlorobenzene	ND	0.080	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,3-Dichlorobenzene	ND	0.071	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,4-Dichlorobenzene	ND	0.084	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Diethyl phthalate	ND	0.32	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Dimethyl phthalate	ND	0.092	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dichlorophenol	ND	0.081	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dimethylphenol	ND	0.071	0.30		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.084	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dinitrophenol	ND	0.050	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,6-Dinitrotoluene	ND	0.10	0.50		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Fluoranthene	ND	0.080	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Fluorene	ND	0.089	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachlorobenzene	ND	0.088	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachlorobutadiene	ND	0.093	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Hexachloroethane	ND	0.088	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Isophorone	ND	0.081	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1-Methylnaphthalene	ND	0.091	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Methylnaphthalene	ND	0.082	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Methylphenol	ND	0.084	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
3+4-Methylphenol	ND	0.082	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
N-Nitrosodi-n-propylamine	ND	0.092	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Naphthalene	ND	0.094	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
3-Nitroaniline	ND	0.12	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Nitrobenzene	ND	0.081	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2-Nitrophenol	ND	0.086	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
4-Nitrophenol	ND	0.082	0.25		mg/Kg	1	8/25/2021 6:47:55 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB4 (7.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.086	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Phenanthrene	ND	0.10	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Phenol	ND	0.077	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Pyrene	ND	0.075	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Pyridine	ND	0.16	0.40		mg/Kg	1	8/25/2021 6:47:55 PM	62017
1,2,4-Trichlorobenzene	ND	0.091	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
2,4,6-Trichlorophenol	ND	0.086	0.20		mg/Kg	1	8/25/2021 6:47:55 PM	62017
Surr: 2-Fluorophenol	41.9		20.3-74.1		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: Phenol-d5	49.6		23.1-92.7		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: 2,4,6-Tribromophenol	68.2		17.3-122		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: Nitrobenzene-d5	32.9		24.7-73.2		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: 2-Fluorobiphenyl	36.9		21.5-90.1		%Rec	1	8/25/2021 6:47:55 PM	62017
Surr: 4-Terphenyl-d14	98.1		15-140		%Rec	1	8/25/2021 6:47:55 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.50	0.0070	0.018		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Toluene	ND	0.0047	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Ethylbenzene	0.11	0.0089	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Methyl tert-butyl ether (MTBE)	2.3	0.021	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,4-Trimethylbenzene	0.020	0.0052	0.037	J	mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0082	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0083	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.014	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Naphthalene	ND	0.014	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1-Methylnaphthalene	ND	0.042	0.15		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Methylnaphthalene	ND	0.034	0.15		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Acetone	ND	0.12	0.55		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromobenzene	ND	0.0078	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromodichloromethane	ND	0.0047	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromoform	ND	0.0088	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Bromomethane	ND	0.061	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Carbon tetrachloride	ND	0.0041	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chlorobenzene	ND	0.0066	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chloroethane	ND	0.014	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chloroform	ND	0.0052	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Chlorotoluene	ND	0.0049	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.019	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
cis-1,2-DCE	ND	0.018	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
cis-1,3-Dichloropropene	ND	0.0054	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.016	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Dibromochloromethane	ND	0.0059	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Dibromomethane	ND	0.0086	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dichlorobenzene	ND	0.0076	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,3-Dichlorobenzene	ND	0.0069	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,4-Dichlorobenzene	ND	0.0098	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1-Dichloroethene	ND	0.0078	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2-Dichloropropane	ND	0.0071	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,3-Dichloropropane	ND	0.0080	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2,2-Dichloropropane	ND	0.0052	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1-Dichloropropene	ND	0.0044	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Hexachlorobutadiene	ND	0.025	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Isopropylbenzene	ND	0.0068	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
4-Isopropyltoluene	ND	0.0094	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
4-Methyl-2-pentanone	ND	0.043	0.37		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
n-Butylbenzene	ND	0.0098	0.11		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
n-Propylbenzene	0.016	0.0059	0.037	J	mg/Kg	1	8/18/2021 4:25:51 AM	A80598
sec-Butylbenzene	ND	0.030	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Styrene	ND	0.0050	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
tert-Butylbenzene	ND	0.0085	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0054	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
trans-1,2-DCE	ND	0.0071	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
trans-1,3-Dichloropropene	ND	0.0086	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0057	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,1-Trichloroethane	ND	0.0081	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,1,2-Trichloroethane	ND	0.0092	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Trichloroethene (TCE)	ND	0.0072	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Trichlorofluoromethane	ND	0.0083	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
1,2,3-Trichloropropane	ND	0.015	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598

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Qualifiers:

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:15:00 PM
Lab ID: 2108721-022 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0070	0.037		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Xylenes, Total	ND	0.019	0.073		mg/Kg	1	8/18/2021 4:25:51 AM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
Surr: 1,2-Dichloroethane-d4	95.7		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
Surr: Toluene-d8	102		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
Surr: 4-Bromofluorobenzene	98.1		70-130		%Rec	1	8/18/2021 4:25:51 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	2.9	1.0	3.7	J	mg/Kg	1	8/17/2021 4:09:47 AM	B80534
Surr: BFB	94.8	0	70-130		%Rec	1	8/17/2021 4:09:47 AM	B80534

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PQL	Practical Quanitative Limit
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B	Analyte detected in the associated Method Blank
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.8	9.8		mg/Kg	1	8/17/2021 3:06:26 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 3:06:26 PM	62000
Surr: DNOP	107	0	70-130		%Rec	1	8/17/2021 3:06:26 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.75	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Barium	390	4.9	9.8		mg/Kg	100	8/26/2021 4:17:21 PM	62062
Cadmium	ND	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Chromium	18	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Lead	13	0.49	0.98		mg/Kg	10	8/26/2021 4:21:53 PM	62062
Selenium	0.78	0.28	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
Silver	ND	0.24	0.49		mg/Kg	5	8/24/2021 8:23:09 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0065	0.0028	0.036	J	mg/Kg	1	8/25/2021 11:22:08 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.083	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Acenaphthylene	ND	0.084	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Aniline	ND	0.064	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Anthracene	ND	0.084	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Azobenzene	ND	0.093	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benz(a)anthracene	ND	0.060	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(a)pyrene	ND	0.088	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(b)fluoranthene	ND	0.099	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(g,h,i)perylene	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzo(k)fluoranthene	ND	0.070	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzoic acid	ND	0.12	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Benzyl alcohol	ND	0.076	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-chloroethoxy)methane	ND	0.071	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-chloroethyl)ether	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Bis(2-ethylhexyl)phthalate	ND	0.20	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Bromophenyl phenyl ether	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Butyl benzyl phthalate	ND	0.057	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Carbazole	ND	0.082	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Chloro-3-methylphenol	ND	0.079	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Chloroaniline	ND	0.091	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Chloronaphthalene	ND	0.088	0.23		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Chlorophenyl phenyl ether	ND	0.079	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.082	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Di-n-butyl phthalate	0.27	0.26	0.37	J	mg/Kg	1	8/23/2021 10:03:22 PM	62017
Di-n-octyl phthalate	ND	0.12	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Dibenz(a,h)anthracene	ND	0.098	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Dibenzofuran	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,2-Dichlorobenzene	ND	0.075	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,3-Dichlorobenzene	ND	0.066	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,4-Dichlorobenzene	ND	0.079	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
3,3´-Dichlorobenzidine	ND	0.14	0.23		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Diethyl phthalate	ND	0.30	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Dimethyl phthalate	ND	0.086	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dichlorophenol	ND	0.076	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dimethylphenol	ND	0.066	0.28		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.078	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dinitrophenol	ND	0.047	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,6-Dinitrotoluene	ND	0.095	0.47		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Fluoranthene	ND	0.075	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Fluorene	ND	0.083	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachlorobenzene	ND	0.083	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachlorobutadiene	ND	0.087	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Hexachloroethane	ND	0.082	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Isophorone	ND	0.076	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1-Methylnaphthalene	ND	0.086	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Methylnaphthalene	ND	0.077	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Methylphenol	ND	0.078	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
3+4-Methylphenol	ND	0.077	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
N-Nitrosodi-n-propylamine	ND	0.086	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
N-Nitrosodiphenylamine	ND	0.097	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Naphthalene	ND	0.088	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Nitroaniline	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Nitrobenzene	ND	0.076	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2-Nitrophenol	ND	0.080	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
4-Nitrophenol	ND	0.077	0.23		mg/Kg	1	8/23/2021 10:03:22 PM	62017

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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.080	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Phenanthrene	ND	0.095	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Phenol	ND	0.072	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Pyrene	ND	0.071	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Pyridine	ND	0.15	0.37		mg/Kg	1	8/23/2021 10:03:22 PM	62017
1,2,4-Trichlorobenzene	ND	0.085	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4,5-Trichlorophenol	ND	0.059	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
2,4,6-Trichlorophenol	ND	0.080	0.19		mg/Kg	1	8/23/2021 10:03:22 PM	62017
Surr: 2-Fluorophenol	54.3		20.3-74.1		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: Phenol-d5	65.4		23.1-92.7		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: 2,4,6-Tribromophenol	75.9		17.3-122		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: Nitrobenzene-d5	45.9		24.7-73.2		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: 2-Fluorobiphenyl	48.3		21.5-90.1		%Rec	1	8/23/2021 10:03:22 PM	62017
Surr: 4-Terphenyl-d14	97.9		15-140		%Rec	1	8/23/2021 10:03:22 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.43	0.0078	0.020		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Toluene	ND	0.0052	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Ethylbenzene	0.16	0.0098	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Methyl tert-butyl ether (MTBE)	2.1	0.023	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,4-Trimethylbenzene	0.040	0.0057	0.040	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,3,5-Trimethylbenzene	ND	0.0091	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0092	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.016	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Naphthalene	0.030	0.015	0.081	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1-Methylnaphthalene	ND	0.046	0.16		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Methylnaphthalene	ND	0.037	0.16		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Acetone	ND	0.13	0.61		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromobenzene	ND	0.0086	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromodichloromethane	ND	0.0051	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromoform	ND	0.0097	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Bromomethane	ND	0.067	0.12		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Butanone	ND	0.18	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Carbon disulfide	ND	0.017	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Carbon tetrachloride	ND	0.0045	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chlorobenzene	ND	0.0073	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chloroethane	ND	0.015	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chloroform	ND	0.0057	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Chlorotoluene	ND	0.0054	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.021	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
cis-1,2-DCE	ND	0.020	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
cis-1,3-Dichloropropene	ND	0.0060	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.017	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Dibromochloromethane	ND	0.0065	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Dibromomethane	ND	0.0094	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dichlorobenzene	ND	0.0084	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,3-Dichlorobenzene	ND	0.0076	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,4-Dichlorobenzene	ND	0.011	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Dichlorodifluoromethane	ND	0.016	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1-Dichloroethane	ND	0.012	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1-Dichloroethene	ND	0.0087	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2-Dichloropropane	ND	0.0079	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,3-Dichloropropane	ND	0.0089	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2,2-Dichloropropane	ND	0.0057	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1-Dichloropropene	ND	0.0049	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Hexachlorobutadiene	ND	0.027	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
2-Hexanone	ND	0.018	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Isopropylbenzene	0.012	0.0075	0.040	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
4-Isopropyltoluene	ND	0.010	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
4-Methyl-2-pentanone	ND	0.047	0.40		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Methylene chloride	ND	0.029	0.12		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
n-Butylbenzene	0.012	0.011	0.12	J	mg/Kg	1	8/18/2021 4:54:37 AM	A80598
n-Propylbenzene	0.043	0.0065	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
sec-Butylbenzene	ND	0.033	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Styrene	ND	0.0055	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
tert-Butylbenzene	ND	0.0093	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0059	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.013	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Tetrachloroethene (PCE)	ND	0.011	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
trans-1,2-DCE	ND	0.0078	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
trans-1,3-Dichloropropene	ND	0.0095	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0062	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,4-Trichlorobenzene	ND	0.014	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,1-Trichloroethane	ND	0.0089	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,1,2-Trichloroethane	ND	0.010	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Trichloroethene (TCE)	ND	0.0079	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Trichlorofluoromethane	ND	0.0092	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
1,2,3-Trichloropropane	ND	0.017	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB4 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 2:20:00 PM
Lab ID: 2108721-023 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0077	0.040		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Xylenes, Total	ND	0.021	0.081		mg/Kg	1	8/18/2021 4:54:37 AM	A80598
Surr: Dibromofluoromethane	100		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
Surr: Toluene-d8	102		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
Surr: 4-Bromofluorobenzene	88.4		70-130		%Rec	1	8/18/2021 4:54:37 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	5.4	1.1	4.0		mg/Kg	1	8/18/2021 4:54:37 AM	G80598
Surr: BFB	92.5	0	70-130		%Rec	1	8/18/2021 4:54:37 AM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	120	9.7	20		mg/Kg	2	8/18/2021 9:24:06 PM	62000
Motor Oil Range Organics (MRO)	320	98	98		mg/Kg	2	8/18/2021 9:24:06 PM	62000
Surr: DNOP	120	0	70-130		%Rec	2	8/18/2021 9:24:06 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Barium	650	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Cadmium	ND	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Chromium	43	0.97	1.9		mg/Kg	20	8/27/2021 4:47:20 PM	62062
Lead	40	0.97	1.9		mg/Kg	20	8/26/2021 4:44:41 PM	62062
Selenium	ND	11	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
Silver	ND	9.7	19		mg/Kg	200	8/26/2021 4:26:26 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.080	0.0026	0.033		mg/Kg	1	8/25/2021 11:24:17 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Di-n-butyl phthalate	ND	2.8	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dinitrophenol	ND	0.50	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Isophorone	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 6:55:16 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 6:55:16 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0089	0.023		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Toluene	ND	0.0060	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Ethylbenzene	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Methyl tert-butyl ether (MTBE)	ND	0.026	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,4-Trimethylbenzene	ND	0.0065	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,3,5-Trimethylbenzene	ND	0.010	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.018	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Naphthalene	ND	0.017	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1-Methylnaphthalene	ND	0.053	0.19		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Methylnaphthalene	ND	0.043	0.19		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Acetone	ND	0.15	0.70		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromobenzene	ND	0.0098	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromodichloromethane	ND	0.0059	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromoform	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Bromomethane	ND	0.077	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Butanone	ND	0.20	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Carbon disulfide	ND	0.019	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Carbon tetrachloride	ND	0.0052	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chlorobenzene	ND	0.0083	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chloroethane	ND	0.017	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chloroform	ND	0.0066	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Chloromethane	ND	0.016	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Chlorotoluene	ND	0.0062	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB5 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.024	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
cis-1,2-DCE	ND	0.023	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
cis-1,3-Dichloropropene	ND	0.0069	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.020	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Dibromochloromethane	ND	0.0074	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Dibromomethane	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dichlorobenzene	ND	0.0096	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,3-Dichlorobenzene	ND	0.0088	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,4-Dichlorobenzene	ND	0.012	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Dichlorodifluoromethane	ND	0.018	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1-Dichloroethane	ND	0.013	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1-Dichloroethene	ND	0.0099	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2-Dichloropropane	ND	0.0090	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,3-Dichloropropane	ND	0.010	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2,2-Dichloropropane	ND	0.0066	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1-Dichloropropene	ND	0.0056	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Hexachlorobutadiene	ND	0.032	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
2-Hexanone	ND	0.020	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Isopropylbenzene	ND	0.0086	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
4-Isopropyltoluene	ND	0.012	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
4-Methyl-2-pentanone	ND	0.054	0.46		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Methylene chloride	ND	0.034	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
n-Butylbenzene	ND	0.012	0.14		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
n-Propylbenzene	ND	0.0075	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
sec-Butylbenzene	ND	0.038	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Styrene	ND	0.0063	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
tert-Butylbenzene	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0068	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.015	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Tetrachloroethene (PCE)	ND	0.013	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
trans-1,2-DCE	ND	0.0090	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
trans-1,3-Dichloropropene	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0072	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,4-Trichlorobenzene	ND	0.016	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,1-Trichloroethane	ND	0.010	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,1,2-Trichloroethane	ND	0.012	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Trichloroethene (TCE)	ND	0.0091	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Trichlorofluoromethane	ND	0.011	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
1,2,3-Trichloropropane	ND	0.020	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:30:00 PM
Lab ID: 2108721-024 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0088	0.046		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Xylenes, Total	ND	0.024	0.093		mg/Kg	1	8/18/2021 5:51:51 AM	A80598
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
Surr: 1,2-Dichloroethane-d4	99.7		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
Surr: Toluene-d8	105		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
Surr: 4-Bromofluorobenzene	89.5		70-130		%Rec	1	8/18/2021 5:51:51 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.3	4.6		mg/Kg	1	8/17/2021 5:06:55 AM	C80534
Surr: BFB	97.2	0	70-130		%Rec	1	8/17/2021 5:06:55 AM	C80534

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	110	9.8	20		mg/Kg	2	8/18/2021 8:36:11 PM	62000
Motor Oil Range Organics (MRO)	430	99	99		mg/Kg	2	8/18/2021 8:36:11 PM	62000
Surr: DNOP	117	0	70-130		%Rec	2	8/18/2021 8:36:11 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.6	1.0	2.0	J	mg/Kg	20	8/26/2021 4:53:51 PM	62062
Barium	480	10	20		mg/Kg	200	8/26/2021 4:49:19 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 4:53:51 PM	62062
Chromium	12	1.0	2.0		mg/Kg	20	8/27/2021 5:05:50 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/26/2021 4:53:51 PM	62062
Selenium	1.5	1.1	2.0	J	mg/Kg	20	8/26/2021 4:53:51 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 4:53:51 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.14	0.012	0.15	J	mg/Kg	5	8/25/2021 1:10:33 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Acenaphthylene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Aniline	ND	0.65	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Anthracene	ND	0.84	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Azobenzene	ND	0.93	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benz(a)anthracene	ND	0.60	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(a)pyrene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(b)fluoranthene	ND	0.99	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(g,h,i)perylene	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzo(k)fluoranthene	ND	0.70	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzoic acid	ND	1.2	9.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Benzyl alcohol	ND	0.76	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-chloroethoxy)methane	ND	0.71	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-chloroethyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.0	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Bromophenyl phenyl ether	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Carbazole	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Chloro-3-methylphenol	ND	0.79	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Chloroaniline	ND	0.91	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Chloronaphthalene	ND	0.88	2.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Chlorophenyl phenyl ether	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Di-n-butyl phthalate	ND	2.6	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Di-n-octyl phthalate	ND	1.2	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Dibenz(a,h)anthracene	ND	0.98	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Dibenzofuran	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,2-Dichlorobenzene	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,3-Dichlorobenzene	ND	0.66	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,4-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
3,3´-Dichlorobenzidine	ND	1.4	2.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Diethyl phthalate	ND	3.0	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Dimethyl phthalate	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dichlorophenol	ND	0.76	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dimethylphenol	ND	0.66	2.8	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.79	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dinitrophenol	ND	0.47	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4-Dinitrotoluene	ND	1.1	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,6-Dinitrotoluene	ND	0.95	4.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Fluoranthene	ND	0.75	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Fluorene	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachlorobutadiene	ND	0.87	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Hexachloroethane	ND	0.82	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Isophorone	ND	0.76	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1-Methylnaphthalene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Methylnaphthalene	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
3+4-Methylphenol	ND	0.77	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
N-Nitrosodi-n-propylamine	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
N-Nitrosodiphenylamine	ND	0.97	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Naphthalene	ND	0.88	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Nitroaniline	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Nitroaniline	ND	1.2	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Nitrobenzene	ND	0.76	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2-Nitrophenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
4-Nitrophenol	ND	0.77	2.3	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.80	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Phenanthrene	ND	0.95	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Phenol	ND	0.72	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Pyrene	ND	0.71	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Pyridine	ND	1.5	3.7	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
1,2,4-Trichlorobenzene	ND	0.86	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4,5-Trichlorophenol	ND	0.59	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
2,4,6-Trichlorophenol	ND	0.80	1.9	D	mg/Kg	10	8/30/2021 7:36:59 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 7:36:59 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	7.5	0.029	0.074		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Toluene	0.50	0.019	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Ethylbenzene	0.80	0.036	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Methyl tert-butyl ether (MTBE)	0.64	0.084	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,4-Trimethylbenzene	0.085	0.021	0.15	J	mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,3,5-Trimethylbenzene	ND	0.033	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.034	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.058	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Naphthalene	ND	0.055	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1-Methylnaphthalene	ND	0.17	0.59		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Methylnaphthalene	ND	0.14	0.59		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Acetone	ND	0.48	2.2		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromobenzene	ND	0.031	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromodichloromethane	ND	0.019	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromoform	ND	0.036	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Bromomethane	ND	0.25	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Butanone	ND	0.64	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Carbon disulfide	ND	0.061	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Carbon tetrachloride	ND	0.017	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chlorobenzene	ND	0.027	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chloroethane	ND	0.055	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chloroform	ND	0.021	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Chloromethane	ND	0.052	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Chlorotoluene	ND	0.020	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.078	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
cis-1,2-DCE	ND	0.074	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
cis-1,3-Dichloropropene	ND	0.022	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.064	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Dibromochloromethane	ND	0.024	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Dibromomethane	ND	0.035	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dichlorobenzene	ND	0.031	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,3-Dichlorobenzene	ND	0.028	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,4-Dichlorobenzene	ND	0.040	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Dichlorodifluoromethane	ND	0.057	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1-Dichloroethane	ND	0.043	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1-Dichloroethene	ND	0.032	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2-Dichloropropane	ND	0.029	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,3-Dichloropropane	ND	0.033	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2,2-Dichloropropane	ND	0.021	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1-Dichloropropene	ND	0.018	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Hexachlorobutadiene	ND	0.10	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
2-Hexanone	ND	0.065	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Isopropylbenzene	ND	0.028	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
4-Isopropyltoluene	ND	0.038	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
4-Methyl-2-pentanone	ND	0.17	1.5		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Methylene chloride	ND	0.11	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
n-Butylbenzene	ND	0.040	0.45		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
n-Propylbenzene	ND	0.024	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
sec-Butylbenzene	ND	0.12	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Styrene	ND	0.020	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
tert-Butylbenzene	ND	0.034	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.022	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.048	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Tetrachloroethene (PCE)	ND	0.041	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
trans-1,2-DCE	ND	0.029	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
trans-1,3-Dichloropropene	ND	0.035	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,3-Trichlorobenzene	ND	0.023	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,4-Trichlorobenzene	ND	0.052	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,1-Trichloroethane	ND	0.033	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,1,2-Trichloroethane	ND	0.037	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Trichloroethene (TCE)	ND	0.029	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Trichlorofluoromethane	ND	0.034	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
1,2,3-Trichloropropane	ND	0.062	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:35:00 PM
Lab ID: 2108721-025 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.028	0.15		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Xylenes, Total	2.2	0.078	0.30		mg/Kg	5	8/18/2021 6:20:25 AM	A80598
Surr: Dibromofluoromethane	108		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
Surr: Toluene-d8	104		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
Surr: 4-Bromofluorobenzene	98.3		70-130		%Rec	5	8/18/2021 6:20:25 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	40	4.1	15		mg/Kg	5	8/17/2021 6:32:38 AM	C80534
Surr: BFB	99.0	0	70-130		%Rec	5	8/17/2021 6:32:38 AM	C80534

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	31	4.9	9.8		mg/Kg	1	8/18/2021 2:17:53 PM	62000
Motor Oil Range Organics (MRO)	91	49	49		mg/Kg	1	8/18/2021 2:17:53 PM	62000
Surr: DNOP	121	0	70-130		%Rec	1	8/18/2021 2:17:53 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
Barium	260	9.9	20		mg/Kg	200	8/26/2021 4:58:24 PM	62062
Cadmium	ND	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
Chromium	14	0.99	2.0		mg/Kg	20	8/27/2021 5:10:24 PM	62062
Lead	14	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
Selenium	1.6	1.1	2.0	J	mg/Kg	20	8/26/2021 5:02:57 PM	62062
Silver	ND	0.99	2.0		mg/Kg	20	8/26/2021 5:02:57 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0087	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:41:28 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Di-n-butyl phthalate	ND	2.8	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dinitrophenol	ND	0.50	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Isophorone	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/30/2021 8:18:36 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/30/2021 8:18:36 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	14	0.044	0.11		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Toluene	1.3	0.029	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Ethylbenzene	1.3	0.055	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Methyl tert-butyl ether (MTBE)	0.79	0.13	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,4-Trimethylbenzene	0.23	0.032	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,3,5-Trimethylbenzene	0.056	0.051	0.23	J	mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.052	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.089	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Naphthalene	ND	0.085	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1-Methylnaphthalene	ND	0.26	0.91		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Methylnaphthalene	ND	0.21	0.91		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Acetone	ND	0.74	3.4		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromobenzene	ND	0.048	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromodichloromethane	ND	0.029	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromoform	ND	0.055	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Bromomethane	ND	0.38	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Butanone	ND	0.99	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Carbon disulfide	ND	0.094	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Carbon tetrachloride	ND	0.025	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chlorobenzene	ND	0.041	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chloroethane	ND	0.085	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chloroform	ND	0.032	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Chloromethane	ND	0.080	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Chlorotoluene	ND	0.030	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.12	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
cis-1,2-DCE	ND	0.11	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
cis-1,3-Dichloropropene	ND	0.034	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.098	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Dibromochloromethane	ND	0.036	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Dibromomethane	ND	0.053	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dichlorobenzene	ND	0.047	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,3-Dichlorobenzene	ND	0.043	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,4-Dichlorobenzene	ND	0.061	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Dichlorodifluoromethane	ND	0.088	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1-Dichloroethane	ND	0.066	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1-Dichloroethene	ND	0.049	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2-Dichloropropane	ND	0.044	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,3-Dichloropropane	ND	0.050	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2,2-Dichloropropane	ND	0.032	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1-Dichloropropene	ND	0.027	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Hexachlorobutadiene	ND	0.15	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
2-Hexanone	ND	0.099	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Isopropylbenzene	ND	0.042	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
4-Isopropyltoluene	ND	0.059	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
4-Methyl-2-pentanone	ND	0.27	2.3		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Methylene chloride	ND	0.16	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
n-Butylbenzene	ND	0.061	0.68		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
n-Propylbenzene	0.047	0.037	0.23	J	mg/Kg	5	8/18/2021 6:49:00 AM	A80598
sec-Butylbenzene	ND	0.19	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Styrene	ND	0.031	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
tert-Butylbenzene	ND	0.053	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.033	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.074	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Tetrachloroethene (PCE)	ND	0.062	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
trans-1,2-DCE	ND	0.044	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
trans-1,3-Dichloropropene	ND	0.053	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,3-Trichlorobenzene	ND	0.035	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,4-Trichlorobenzene	ND	0.079	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,1-Trichloroethane	ND	0.050	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,1,2-Trichloroethane	ND	0.057	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Trichloroethene (TCE)	ND	0.045	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Trichlorofluoromethane	ND	0.052	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
1,2,3-Trichloropropane	ND	0.096	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (4')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:40:00 PM
Lab ID: 2108721-026 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.043	0.23		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Xylenes, Total	4.8	0.12	0.45		mg/Kg	5	8/18/2021 6:49:00 AM	A80598
Surr: Dibromofluoromethane	101		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
Surr: Toluene-d8	103		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
Surr: 4-Bromofluorobenzene	91.8		70-130		%Rec	5	8/18/2021 6:49:00 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	93	6.3	23		mg/Kg	5	8/18/2021 6:49:00 AM	G80598
Surr: BFB	93.6	0	70-130		%Rec	5	8/18/2021 6:49:00 AM	G80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1200	230	470		mg/Kg	50	8/17/2021 3:45:53 PM	62000
Motor Oil Range Organics (MRO)	3600	2400	2400		mg/Kg	50	8/17/2021 3:45:53 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	50	8/17/2021 3:45:53 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.5	1.0	2.1	J	mg/Kg	20	8/26/2021 5:12:02 PM	62062
Barium	780	10	21		mg/Kg	200	8/26/2021 5:07:29 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:12:02 PM	62062
Chromium	13	1.0	2.1		mg/Kg	20	8/27/2021 5:14:57 PM	62062
Lead	11	1.0	2.1		mg/Kg	20	8/26/2021 5:12:02 PM	62062
Selenium	1.4	1.2	2.1	J	mg/Kg	20	8/26/2021 5:12:02 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:12:02 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.016	0.0026	0.032	J	mg/Kg	1	8/25/2021 11:35:01 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Acenaphthylene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Aniline	ND	3.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Anthracene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Azobenzene	ND	4.9	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benz(a)anthracene	ND	3.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(a)pyrene	ND	4.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(b)fluoranthene	ND	5.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(g,h,i)perylene	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzo(k)fluoranthene	ND	3.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzoic acid	ND	6.1	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Benzyl alcohol	ND	4.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-chloroethoxy)methane	ND	3.8	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-chloroethyl)ether	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-chloroisopropyl)ether	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Bis(2-ethylhexyl)phthalate	ND	11	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Bromophenyl phenyl ether	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Butyl benzyl phthalate	ND	3.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Carbazole	ND	4.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Chloro-3-methylphenol	ND	4.1	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Chloroaniline	ND	4.8	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Chloronaphthalene	ND	4.7	12	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Chlorophenol	ND	5.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Chlorophenyl phenyl ether	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	4.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Di-n-butyl phthalate	ND	14	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Di-n-octyl phthalate	ND	6.3	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Dibenz(a,h)anthracene	ND	5.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Dibenzofuran	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,2-Dichlorobenzene	ND	4.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,3-Dichlorobenzene	ND	3.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,4-Dichlorobenzene	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
3,3´-Dichlorobenzidine	ND	7.4	12	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Diethyl phthalate	ND	16	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Dimethyl phthalate	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dichlorophenol	ND	4.0	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dimethylphenol	ND	3.5	15	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4,6-Dinitro-2-methylphenol	ND	4.1	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dinitrophenol	ND	2.5	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4-Dinitrotoluene	ND	6.0	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,6-Dinitrotoluene	ND	5.0	25	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Fluoranthene	ND	4.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Fluorene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachlorobenzene	ND	4.4	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachlorobutadiene	ND	4.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachlorocyclopentadiene	ND	5.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Hexachloroethane	ND	4.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Indeno(1,2,3-cd)pyrene	ND	5.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Isophorone	ND	4.0	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1-Methylnaphthalene	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Methylnaphthalene	ND	4.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Methylphenol	ND	4.1	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
3+4-Methylphenol	ND	4.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
N-Nitrosodi-n-propylamine	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
N-Nitrosodimethylamine	ND	7.3	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
N-Nitrosodiphenylamine	ND	5.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Naphthalene	ND	4.6	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Nitroaniline	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
3-Nitroaniline	ND	5.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Nitroaniline	ND	6.3	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Nitrobenzene	ND	4.0	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2-Nitrophenol	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
4-Nitrophenol	ND	4.0	12	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	4.2	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Phenanthrene	ND	5.0	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Phenol	ND	3.8	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Pyrene	ND	3.7	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Pyridine	ND	7.9	20	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
1,2,4-Trichlorobenzene	ND	4.5	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4,5-Trichlorophenol	ND	3.1	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
2,4,6-Trichlorophenol	ND	4.2	9.8	D	mg/Kg	50	8/24/2021 12:49:56 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/24/2021 12:49:56 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.81	0.0061	0.016		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Toluene	0.066	0.0041	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Ethylbenzene	0.88	0.0078	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Methyl tert-butyl ether (MTBE)	0.35	0.018	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,4-Trimethylbenzene	1.3	0.0045	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,3,5-Trimethylbenzene	0.33	0.0071	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dichloroethane (EDC)	ND	0.0073	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dibromoethane (EDB)	ND	0.013	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Naphthalene	0.080	0.012	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1-Methylnaphthalene	ND	0.037	0.13		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Methylnaphthalene	0.046	0.029	0.13	J	mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Acetone	ND	0.10	0.48		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromobenzene	ND	0.0068	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromodichloromethane	ND	0.0041	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromoform	ND	0.0077	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Bromomethane	ND	0.053	0.096		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Butanone	ND	0.14	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Carbon disulfide	ND	0.013	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Carbon tetrachloride	ND	0.0035	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chlorobenzene	ND	0.0057	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chloroethane	ND	0.012	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chloroform	ND	0.0045	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Chloromethane	ND	0.011	0.096		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Chlorotoluene	ND	0.0043	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB5 (5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.017	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
cis-1,2-DCE	ND	0.016	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
cis-1,3-Dichloropropene	ND	0.0047	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dibromo-3-chloropropane	ND	0.014	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Dibromochloromethane	ND	0.0051	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Dibromomethane	ND	0.0074	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dichlorobenzene	ND	0.0066	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,3-Dichlorobenzene	ND	0.0060	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,4-Dichlorobenzene	ND	0.0085	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Dichlorodifluoromethane	ND	0.012	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1-Dichloroethane	ND	0.0093	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1-Dichloroethene	ND	0.0068	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2-Dichloropropane	ND	0.0062	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,3-Dichloropropane	ND	0.0070	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2,2-Dichloropropane	ND	0.0045	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1-Dichloropropene	ND	0.0038	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Hexachlorobutadiene	ND	0.022	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
2-Hexanone	ND	0.014	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Isopropylbenzene	0.049	0.0059	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
4-Isopropyltoluene	ND	0.0082	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
4-Methyl-2-pentanone	ND	0.037	0.32		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Methylene chloride	ND	0.023	0.096		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
n-Butylbenzene	0.034	0.0085	0.096	J	mg/Kg	1	8/18/2021 7:46:08 AM	A80598
n-Propylbenzene	0.25	0.0051	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
sec-Butylbenzene	ND	0.026	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Styrene	ND	0.0043	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
tert-Butylbenzene	ND	0.0074	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,1,2-Tetrachloroethane	ND	0.0047	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,2,2-Tetrachloroethane	ND	0.010	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Tetrachloroethene (PCE)	ND	0.0087	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
trans-1,2-DCE	ND	0.0062	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
trans-1,3-Dichloropropene	ND	0.0075	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,3-Trichlorobenzene	ND	0.0049	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,4-Trichlorobenzene	ND	0.011	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,1-Trichloroethane	ND	0.0070	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,1,2-Trichloroethane	ND	0.0080	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Trichloroethene (TCE)	ND	0.0062	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Trichlorofluoromethane	ND	0.0072	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
1,2,3-Trichloropropane	ND	0.013	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:42:00 PM
Lab ID: 2108721-027 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0061	0.032		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Xylenes, Total	2.4	0.017	0.064		mg/Kg	1	8/18/2021 7:46:08 AM	A80598
Surr: Dibromofluoromethane	96.8		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
Surr: Toluene-d8	101		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
Surr: 4-Bromofluorobenzene	91.0		70-130		%Rec	1	8/18/2021 7:46:08 AM	A80598
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	54	0.89	3.2		mg/Kg	1	8/17/2021 8:27:06 AM	C80534
Surr: BFB	96.7	0	70-130		%Rec	1	8/17/2021 8:27:06 AM	C80534

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	9.5	4.9	9.8	J	mg/Kg	1	8/17/2021 3:55:44 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 3:55:44 PM	62000
Surr: DNOP	111	0	70-130		%Rec	1	8/17/2021 3:55:44 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
Barium	280	9.8	20		mg/Kg	200	8/26/2021 5:16:34 PM	62062
Cadmium	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
Chromium	22	0.98	2.0		mg/Kg	20	8/27/2021 5:19:31 PM	62062
Lead	15	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
Selenium	1.7	1.1	2.0	J	mg/Kg	20	8/26/2021 5:21:07 PM	62062
Silver	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:21:07 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0069	0.0028	0.035	J	mg/Kg	1	8/25/2021 11:43:39 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzoic acid	ND	1.2	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Chloronaphthalene	ND	0.93	2.5	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 1:31:41 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 1:31:41 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	2.3	0.031	0.081		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Toluene	1.3	0.021	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Ethylbenzene	8.7	0.039	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Methyl tert-butyl ether (MTBE)	2.2	0.092	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,4-Trimethylbenzene	20	0.23	1.6		mg/Kg	50	8/19/2021 4:05:58 PM	R80682
1,3,5-Trimethylbenzene	4.8	0.036	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.037	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.064	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Naphthalene	1.2	0.060	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1-Methylnaphthalene	1.2	0.19	0.65		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Methylnaphthalene	2.0	0.15	0.65		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Acetone	ND	0.53	2.4		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromobenzene	ND	0.034	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromodichloromethane	ND	0.021	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromoform	ND	0.039	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Bromomethane	ND	0.27	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Butanone	ND	0.70	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Carbon disulfide	ND	0.067	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Carbon tetrachloride	ND	0.018	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chlorobenzene	ND	0.029	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chloroethane	ND	0.061	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chloroform	ND	0.023	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Chloromethane	ND	0.057	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Chlorotoluene	ND	0.022	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.085	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
cis-1,2-DCE	ND	0.080	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
cis-1,3-Dichloropropene	ND	0.024	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.070	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Dibromochloromethane	ND	0.026	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Dibromomethane	ND	0.038	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dichlorobenzene	ND	0.034	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,3-Dichlorobenzene	ND	0.031	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,4-Dichlorobenzene	ND	0.043	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Dichlorodifluoromethane	ND	0.063	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1-Dichloroethane	ND	0.047	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1-Dichloroethene	ND	0.035	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2-Dichloropropane	ND	0.032	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,3-Dichloropropane	ND	0.036	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2,2-Dichloropropane	ND	0.023	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1-Dichloropropene	ND	0.020	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Hexachlorobutadiene	ND	0.11	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
2-Hexanone	ND	0.071	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Isopropylbenzene	1.2	0.030	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
4-Isopropyltoluene	0.23	0.042	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
4-Methyl-2-pentanone	ND	0.19	1.6		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Methylene chloride	ND	0.12	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
n-Butylbenzene	0.71	0.043	0.49		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
n-Propylbenzene	4.2	0.026	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
sec-Butylbenzene	0.37	0.13	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Styrene	ND	0.022	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
tert-Butylbenzene	ND	0.038	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.024	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.052	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Tetrachloroethene (PCE)	ND	0.044	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
trans-1,2-DCE	ND	0.031	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
trans-1,3-Dichloropropene	ND	0.038	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,3-Trichlorobenzene	ND	0.025	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,4-Trichlorobenzene	ND	0.056	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,1-Trichloroethane	ND	0.036	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,1,2-Trichloroethane	ND	0.041	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Trichloroethene (TCE)	ND	0.032	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Trichlorofluoromethane	ND	0.037	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
1,2,3-Trichloropropane	ND	0.068	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (7.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:45:00 PM
Lab ID: 2108721-028 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.031	0.16		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Xylenes, Total	12	0.085	0.32		mg/Kg	5	8/18/2021 3:27:39 PM	A80646
Surr: Dibromofluoromethane	102		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
Surr: Toluene-d8	107		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
Surr: 4-Bromofluorobenzene	88.8		70-130		%Rec	5	8/18/2021 3:27:39 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	270	4.5	16		mg/Kg	5	8/18/2021 3:27:39 PM	B80646
Surr: BFB	98.3	0	70-130		%Rec	5	8/18/2021 3:27:39 PM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	290	4.8	9.8		mg/Kg	1	8/17/2021 4:05:33 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 4:05:33 PM	62000
Surr: DNOP	110	0	70-130		%Rec	1	8/17/2021 4:05:33 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:43:55 PM	62062
Barium	390	10	21		mg/Kg	200	8/26/2021 5:39:21 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:43:55 PM	62062
Chromium	21	1.0	2.1		mg/Kg	20	8/27/2021 5:24:05 PM	62062
Lead	14	1.0	2.1		mg/Kg	20	8/28/2021 3:09:18 PM	62062
Selenium	1.8	1.2	2.1	J	mg/Kg	20	8/26/2021 5:43:55 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 5:43:55 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0072	0.0028	0.036	J	mg/Kg	1	8/25/2021 11:45:52 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.089	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Acenaphthylene	ND	0.090	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Aniline	ND	0.069	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Anthracene	ND	0.090	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Azobenzene	ND	0.099	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benz(a)anthracene	ND	0.064	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(a)pyrene	ND	0.094	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(b)fluoranthene	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(g,h,i)perylene	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzo(k)fluoranthene	ND	0.075	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzoic acid	ND	0.12	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Benzyl alcohol	ND	0.082	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-chloroethoxy)methane	ND	0.076	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-chloroethyl)ether	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-chloroisopropyl)ether	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Bis(2-ethylhexyl)phthalate	ND	0.21	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Bromophenyl phenyl ether	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Butyl benzyl phthalate	ND	0.061	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Carbazole	ND	0.088	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Chloro-3-methylphenol	ND	0.084	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Chloroaniline	ND	0.097	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Chloronaphthalene	ND	0.094	0.25		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Chlorophenol	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Chlorophenyl phenyl ether	ND	0.084	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.088	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Di-n-butyl phthalate	ND	0.28	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Di-n-octyl phthalate	ND	0.13	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Dibenz(a,h)anthracene	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Dibenzofuran	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,2-Dichlorobenzene	ND	0.081	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,3-Dichlorobenzene	ND	0.071	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,4-Dichlorobenzene	ND	0.084	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
3,3´-Dichlorobenzidine	ND	0.15	0.25		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Diethyl phthalate	ND	0.32	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Dimethyl phthalate	ND	0.092	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dichlorophenol	ND	0.081	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dimethylphenol	ND	0.071	0.30		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.084	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dinitrophenol	ND	0.050	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,6-Dinitrotoluene	ND	0.10	0.50		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Fluoranthene	ND	0.081	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Fluorene	ND	0.089	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachlorobenzene	ND	0.089	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachlorobutadiene	ND	0.093	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Hexachloroethane	ND	0.088	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Indeno(1,2,3-cd)pyrene	ND	0.11	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Isophorone	ND	0.081	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1-Methylnaphthalene	0.73	0.092	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Methylnaphthalene	1.2	0.082	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Methylphenol	ND	0.084	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
3+4-Methylphenol	ND	0.082	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
N-Nitrosodi-n-propylamine	ND	0.092	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
N-Nitrosodimethylamine	ND	0.15	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Naphthalene	0.75	0.094	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Nitroaniline	ND	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
3-Nitroaniline	ND	0.12	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Nitrobenzene	ND	0.082	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2-Nitrophenol	ND	0.086	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
4-Nitrophenol	ND	0.082	0.25		mg/Kg	1	8/24/2021 2:13:22 AM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.086	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Phenanthrene	0.24	0.10	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Phenol	0.091	0.077	0.20	J	mg/Kg	1	8/24/2021 2:13:22 AM	62017
Pyrene	ND	0.075	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Pyridine	ND	0.16	0.40		mg/Kg	1	8/24/2021 2:13:22 AM	62017
1,2,4-Trichlorobenzene	ND	0.091	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4,5-Trichlorophenol	ND	0.063	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
2,4,6-Trichlorophenol	ND	0.086	0.20		mg/Kg	1	8/24/2021 2:13:22 AM	62017
Surr: 2-Fluorophenol	47.3		20.3-74.1		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: Phenol-d5	54.0		23.1-92.7		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: 2,4,6-Tribromophenol	73.4		17.3-122		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: Nitrobenzene-d5	43.0		24.7-73.2		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: 2-Fluorobiphenyl	44.8		21.5-90.1		%Rec	1	8/24/2021 2:13:22 AM	62017
Surr: 4-Terphenyl-d14	90.1		15-140		%Rec	1	8/24/2021 2:13:22 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	1.4	0.031	0.080		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Toluene	0.20	0.021	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Ethylbenzene	8.4	0.039	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Methyl tert-butyl ether (MTBE)	1.5	0.091	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,4-Trimethylbenzene	24	0.23	1.6		mg/Kg	50	8/19/2021 4:34:41 PM	R80682
1,3,5-Trimethylbenzene	5.3	0.036	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.037	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.063	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Naphthalene	1.6	0.060	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1-Methylnaphthalene	1.6	0.18	0.64		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Methylnaphthalene	2.7	0.15	0.64		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Acetone	ND	0.52	2.4		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromobenzene	ND	0.034	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromodichloromethane	ND	0.020	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromoform	ND	0.039	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Bromomethane	ND	0.27	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Butanone	ND	0.70	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Carbon disulfide	ND	0.066	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Carbon tetrachloride	ND	0.018	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chlorobenzene	ND	0.029	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chloroethane	ND	0.060	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chloroform	ND	0.023	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Chloromethane	ND	0.056	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Chlorotoluene	ND	0.022	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.085	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
cis-1,2-DCE	ND	0.080	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
cis-1,3-Dichloropropene	ND	0.024	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.069	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Dibromochloromethane	ND	0.026	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Dibromomethane	ND	0.038	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dichlorobenzene	ND	0.033	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,3-Dichlorobenzene	ND	0.030	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,4-Dichlorobenzene	ND	0.043	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Dichlorodifluoromethane	ND	0.062	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1-Dichloroethane	ND	0.047	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1-Dichloroethene	ND	0.034	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2-Dichloropropane	ND	0.031	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,3-Dichloropropane	ND	0.035	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2,2-Dichloropropane	ND	0.023	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1-Dichloropropene	ND	0.019	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Hexachlorobutadiene	ND	0.11	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
2-Hexanone	ND	0.070	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Isopropylbenzene	1.4	0.030	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
4-Isopropyltoluene	0.30	0.041	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
4-Methyl-2-pentanone	ND	0.19	1.6		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Methylene chloride	ND	0.12	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
n-Butylbenzene	0.97	0.043	0.48		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
n-Propylbenzene	5.1	0.026	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
sec-Butylbenzene	0.48	0.13	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Styrene	ND	0.022	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
tert-Butylbenzene	ND	0.037	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.024	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.052	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Tetrachloroethene (PCE)	ND	0.044	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
trans-1,2-DCE	ND	0.031	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
trans-1,3-Dichloropropene	ND	0.038	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,3-Trichlorobenzene	ND	0.025	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,4-Trichlorobenzene	ND	0.056	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,1-Trichloroethane	ND	0.036	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,1,2-Trichloroethane	ND	0.040	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Trichloroethene (TCE)	ND	0.032	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Trichlorofluoromethane	ND	0.037	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
1,2,3-Trichloropropane	ND	0.068	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB5 (8')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 3:50:00 PM
Lab ID: 2108721-029 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.031	0.16		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Xylenes, Total	12	0.084	0.32		mg/Kg	5	8/18/2021 5:23:01 PM	A80646
Surr: Dibromofluoromethane	99.3		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
Surr: Toluene-d8	106		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
Surr: 4-Bromofluorobenzene	91.7		70-130		%Rec	5	8/18/2021 5:23:01 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	350	4.5	16		mg/Kg	5	8/18/2021 5:23:01 PM	B80646
Surr: BFB	97.4	0	70-130		%Rec	5	8/18/2021 5:23:01 PM	B80646

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H	Holding times for preparation or analysis exceeded
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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB6 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	170	24	48		mg/Kg	5	8/19/2021 2:58:45 AM	62000
Motor Oil Range Organics (MRO)	590	240	240		mg/Kg	5	8/19/2021 2:58:45 AM	62000
Surr: DNOP	120	0	70-130		%Rec	5	8/19/2021 2:58:45 AM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.5	0.98	2.0	J	mg/Kg	20	8/26/2021 5:53:02 PM	62062
Barium	380	9.8	20		mg/Kg	200	8/26/2021 5:48:28 PM	62062
Cadmium	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:53:02 PM	62062
Chromium	18	0.98	2.0		mg/Kg	20	8/27/2021 5:28:38 PM	62062
Lead	60	0.98	2.0		mg/Kg	20	8/28/2021 3:12:45 PM	62062
Selenium	1.3	1.1	2.0	J	mg/Kg	20	8/26/2021 5:53:02 PM	62062
Silver	ND	0.98	2.0		mg/Kg	20	8/26/2021 5:53:02 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.13	0.0028	0.035		mg/Kg	1	8/25/2021 11:48:03 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Acenaphthylene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Aniline	ND	17	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Anthracene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Azobenzene	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benz(a)anthracene	ND	16	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(a)pyrene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(b)fluoranthene	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(g,h,i)perylene	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzo(k)fluoranthene	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzoic acid	ND	31	250	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Benzyl alcohol	ND	20	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-chloroethoxy)methane	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-chloroethyl)ether	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-chloroisopropyl)ether	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Bis(2-ethylhexyl)phthalate	ND	54	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Bromophenyl phenyl ether	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Butyl benzyl phthalate	ND	15	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Carbazole	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Chloro-3-methylphenol	ND	21	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Chloroaniline	ND	24	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Chloronaphthalene	ND	24	62	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Chlorophenol	ND	27	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Chlorophenyl phenyl ether	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Di-n-butyl phthalate	ND	70	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Di-n-octyl phthalate	ND	32	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Dibenz(a,h)anthracene	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Dibenzofuran	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,2-Dichlorobenzene	ND	20	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,3-Dichlorobenzene	ND	18	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,4-Dichlorobenzene	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
3,3´-Dichlorobenzidine	ND	37	62	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Diethyl phthalate	ND	81	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Dimethyl phthalate	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dichlorophenol	ND	20	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dimethylphenol	ND	18	75	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4,6-Dinitro-2-methylphenol	ND	21	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dinitrophenol	ND	13	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4-Dinitrotoluene	ND	30	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,6-Dinitrotoluene	ND	25	120	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Fluoranthene	ND	20	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Fluorene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachlorobenzene	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachlorobutadiene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachlorocyclopentadiene	ND	28	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Hexachloroethane	ND	22	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Indeno(1,2,3-cd)pyrene	ND	29	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Isophorone	ND	20	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1-Methylnaphthalene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Methylnaphthalene	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Methylphenol	ND	21	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
3+4-Methylphenol	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
N-Nitrosodi-n-propylamine	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
N-Nitrosodimethylamine	ND	37	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
N-Nitrosodiphenylamine	ND	26	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Naphthalene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Nitroaniline	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
3-Nitroaniline	ND	29	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Nitroaniline	ND	32	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Nitrobenzene	ND	20	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2-Nitrophenol	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
4-Nitrophenol	ND	20	62	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082

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B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	21	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Phenanthrene	ND	25	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Phenol	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Pyrene	ND	19	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Pyridine	ND	40	100	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
1,2,4-Trichlorobenzene	ND	23	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4,5-Trichlorophenol	ND	16	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
2,4,6-Trichlorophenol	ND	21	50	D	mg/Kg	10	8/31/2021 10:56:43 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 10:56:43 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	0.0098	0.0094	0.024	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
Toluene	ND	0.0063	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Ethylbenzene	0.10	0.012	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Methyl tert-butyl ether (MTBE)	0.087	0.027	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,4-Trimethylbenzene	0.51	0.0069	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,3,5-Trimethylbenzene	0.023	0.011	0.049	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Naphthalene	0.17	0.018	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1-Methylnaphthalene	0.13	0.056	0.19	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Methylnaphthalene	0.21	0.045	0.19		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Acetone	ND	0.16	0.73		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromodichloromethane	ND	0.0062	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromoform	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Bromomethane	ND	0.081	0.15		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Butanone	ND	0.21	0.49		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Carbon disulfide	ND	0.020	0.49		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Carbon tetrachloride	ND	0.0054	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chlorobenzene	ND	0.0087	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chloroethane	ND	0.018	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chloroform	ND	0.0069	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Chlorotoluene	ND	0.0065	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SB6 (0')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.026	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
cis-1,2-DCE	ND	0.024	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
cis-1,3-Dichloropropene	ND	0.0072	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Dibromochloromethane	ND	0.0078	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Dibromomethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dichlorobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,3-Dichlorobenzene	ND	0.0092	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,4-Dichlorobenzene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Dichlorodifluoromethane	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1-Dichloroethane	ND	0.014	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1-Dichloroethene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2-Dichloropropane	ND	0.0095	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,3-Dichloropropane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2,2-Dichloropropane	ND	0.0069	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1-Dichloropropene	ND	0.0059	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Hexachlorobutadiene	ND	0.033	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
2-Hexanone	0.038	0.021	0.49	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
Isopropylbenzene	0.017	0.0090	0.049	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
4-Isopropyltoluene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
4-Methyl-2-pentanone	ND	0.057	0.49		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Methylene chloride	ND	0.035	0.15		mg/Kg	1	8/24/2021 1:29:26 AM	62009
n-Butylbenzene	0.038	0.013	0.15	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
n-Propylbenzene	0.065	0.0079	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
sec-Butylbenzene	ND	0.040	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Styrene	ND	0.0066	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
tert-Butylbenzene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,1,2-Tetrachloroethane	ND	0.0071	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,2,2-Tetrachloroethane	ND	0.016	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Tetrachloroethene (PCE)	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
trans-1,2-DCE	ND	0.0094	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
trans-1,3-Dichloropropene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,3-Trichlorobenzene	ND	0.0075	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,1-Trichloroethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,1,2-Trichloroethane	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Trichloroethene (TCE)	ND	0.0095	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Trichlorofluoromethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
1,2,3-Trichloropropane	ND	0.020	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (0')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:15:00 PM
Lab ID: 2108721-030 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0093	0.049		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Xylenes, Total	0.11	0.026	0.097		mg/Kg	1	8/24/2021 1:29:26 AM	62009
Surr: Dibromofluoromethane	93.4		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
Surr: Toluene-d8	103		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
Surr: 4-Bromofluorobenzene	111		70-130		%Rec	1	8/24/2021 1:29:26 AM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	2.8	1.4	4.9	J	mg/Kg	1	8/24/2021 1:29:26 AM	62009
Surr: BFB	104	0	70-130		%Rec	1	8/24/2021 1:29:26 AM	62009

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Qualifiers:

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	11000	96	200		mg/Kg	20	8/17/2021 4:25:09 PM	62000
Motor Oil Range Organics (MRO)	ND	980	980	D	mg/Kg	20	8/17/2021 4:25:09 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 4:25:09 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	0.96	1.9	J	mg/Kg	20	8/26/2021 6:02:09 PM	62062
Barium	480	9.6	19		mg/Kg	200	8/26/2021 5:57:35 PM	62062
Cadmium	ND	0.96	1.9		mg/Kg	20	8/26/2021 6:02:09 PM	62062
Chromium	15	0.96	1.9		mg/Kg	20	8/27/2021 5:33:12 PM	62062
Lead	12	0.96	1.9		mg/Kg	20	8/28/2021 3:16:13 PM	62062
Selenium	1.4	1.1	1.9	J	mg/Kg	20	8/26/2021 6:02:09 PM	62062
Silver	ND	0.96	1.9		mg/Kg	20	8/26/2021 6:02:09 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0081	0.0025	0.031	J	mg/Kg	1	8/25/2021 11:50:14 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Acenaphthylene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Aniline	ND	14	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Anthracene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Azobenzene	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benz(a)anthracene	ND	13	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(a)pyrene	ND	19	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(b)fluoranthene	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(g,h,i)perylene	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzo(k)fluoranthene	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzoic acid	ND	25	200	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Benzyl alcohol	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-chloroethoxy)methane	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-chloroethyl)ether	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-chloroisopropyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Bis(2-ethylhexyl)phthalate	ND	42	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Bromophenyl phenyl ether	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Butyl benzyl phthalate	ND	12	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Carbazole	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Chloro-3-methylphenol	ND	17	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Chloroaniline	ND	19	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Chloronaphthalene	ND	19	49	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Chlorophenol	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Chlorophenyl phenyl ether	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Di-n-butyl phthalate	ND	55	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Di-n-octyl phthalate	ND	25	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Dibenz(a,h)anthracene	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Dibenzofuran	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,2-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,3-Dichlorobenzene	ND	14	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,4-Dichlorobenzene	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
3,3´-Dichlorobenzidine	ND	30	49	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Diethyl phthalate	ND	64	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Dimethyl phthalate	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dichlorophenol	ND	16	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dimethylphenol	ND	14	59	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4,6-Dinitro-2-methylphenol	ND	17	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dinitrophenol	ND	9.9	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4-Dinitrotoluene	ND	24	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,6-Dinitrotoluene	ND	20	99	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Fluoranthene	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Fluorene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachlorobutadiene	ND	19	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachlorocyclopentadiene	ND	22	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Hexachloroethane	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Indeno(1,2,3-cd)pyrene	ND	23	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Isophorone	ND	16	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1-Methylnaphthalene	40	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Methylnaphthalene	65	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Methylphenol	ND	17	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
3+4-Methylphenol	ND	16	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
N-Nitrosodi-n-propylamine	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
N-Nitrosodimethylamine	ND	29	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
N-Nitrosodiphenylamine	ND	21	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Naphthalene	33	19	39	JD	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Nitroaniline	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
3-Nitroaniline	ND	23	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Nitroaniline	ND	25	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Nitrobenzene	ND	16	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2-Nitrophenol	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
4-Nitrophenol	ND	16	49	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	17	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Phenanthrene	ND	20	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Phenol	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Pyrene	ND	15	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Pyridine	ND	32	79	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
1,2,4-Trichlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4,5-Trichlorophenol	ND	13	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
2,4,6-Trichlorophenol	ND	17	39	D	mg/Kg	20	8/31/2021 11:38:11 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/31/2021 11:38:11 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.25	0.013	0.033		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Toluene	0.018	0.0084	0.066	J	mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Ethylbenzene	11	0.40	1.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
Methyl tert-butyl ether (MTBE)	1.2	0.037	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,4-Trimethylbenzene	81	0.23	1.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
1,3,5-Trimethylbenzene	3.5	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.026	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Naphthalene	20	0.61	3.3		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
1-Methylnaphthalene	25	1.9	6.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
2-Methylnaphthalene	42	1.5	6.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
Acetone	ND	0.21	0.98		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromobenzene	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromodichloromethane	ND	0.0083	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromoform	ND	0.016	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Bromomethane	ND	0.11	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2-Butanone	ND	0.28	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Carbon disulfide	ND	0.027	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Carbon tetrachloride	ND	0.0073	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chlorobenzene	ND	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chloroethane	ND	0.025	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chloroform	ND	0.0093	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Chloromethane	ND	0.023	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2-Chlorotoluene	ND	0.0088	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SB6 (2.5')
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.034	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
cis-1,2-DCE	ND	0.032	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
cis-1,3-Dichloropropene	ND	0.0097	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.028	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Dibromochloromethane	ND	0.010	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Dibromomethane	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dichlorobenzene	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,3-Dichlorobenzene	ND	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,4-Dichlorobenzene	ND	0.018	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Dichlorodifluoromethane	ND	0.025	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1-Dichloroethane	ND	0.019	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1-Dichloroethene	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2-Dichloropropane	ND	0.013	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,3-Dichloropropane	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2,2-Dichloropropane	ND	0.0093	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1-Dichloropropene	ND	0.0079	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Hexachlorobutadiene	ND	0.045	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
2-Hexanone	ND	0.029	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Isopropylbenzene	2.5	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
4-Isopropyltoluene	2.8	0.017	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
4-Methyl-2-pentanone	ND	0.076	0.66		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Methylene chloride	ND	0.047	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
n-Butylbenzene	6.3	0.018	0.20		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
n-Propylbenzene	9.1	0.26	1.6		mg/Kg	50	8/19/2021 5:03:24 PM	R80682
sec-Butylbenzene	3.2	0.054	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Styrene	ND	0.0089	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
tert-Butylbenzene	0.063	0.015	0.066	J	mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0096	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.021	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Tetrachloroethene (PCE)	ND	0.018	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
trans-1,2-DCE	ND	0.013	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
trans-1,3-Dichloropropene	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,3-Trichlorobenzene	ND	0.010	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,4-Trichlorobenzene	ND	0.023	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,1-Trichloroethane	ND	0.014	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,1,2-Trichloroethane	ND	0.016	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Trichloroethene (TCE)	ND	0.013	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Trichlorofluoromethane	ND	0.015	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
1,2,3-Trichloropropane	ND	0.028	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (2.5')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:20:00 PM
Lab ID: 2108721-031 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.012	0.066		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Xylenes, Total	12	0.034	0.13		mg/Kg	2	8/18/2021 7:17:57 PM	A80646
Surr: Dibromofluoromethane	95.2		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
Surr: Toluene-d8	101		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
Surr: 4-Bromofluorobenzene	92.9		70-130		%Rec	2	8/18/2021 7:17:57 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	290	1.8	6.6		mg/Kg	2	8/18/2021 7:17:57 PM	B80646
Surr: BFB	89.4	0	70-130		%Rec	2	8/18/2021 7:17:57 PM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	16000	95	190		mg/Kg	20	8/17/2021 4:34:55 PM	62000
Motor Oil Range Organics (MRO)	ND	960	960	D	mg/Kg	20	8/17/2021 4:34:55 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 4:34:55 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	1.0	2.0	J	mg/Kg	20	8/26/2021 6:11:16 PM	62062
Barium	360	10	20		mg/Kg	200	8/26/2021 6:06:42 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:11:16 PM	62062
Chromium	14	1.0	2.0		mg/Kg	20	8/27/2021 5:37:46 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/28/2021 3:19:40 PM	62062
Selenium	1.5	1.1	2.0	J	mg/Kg	20	8/26/2021 6:11:16 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:11:16 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0089	0.0026	0.032	J	mg/Kg	1	8/25/2021 11:52:23 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Acenaphthylene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Aniline	ND	35	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Anthracene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Azobenzene	ND	50	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benz(a)anthracene	ND	32	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(a)pyrene	ND	47	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(b)fluoranthene	ND	53	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(g,h,i)perylene	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzo(k)fluoranthene	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzoic acid	ND	62	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Benzyl alcohol	ND	41	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-chloroethoxy)methane	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-chloroethyl)ether	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-chloroisopropyl)ether	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Bis(2-ethylhexyl)phthalate	ND	110	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Bromophenyl phenyl ether	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Butyl benzyl phthalate	ND	30	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Carbazole	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Chloro-3-methylphenol	ND	42	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Chloroaniline	ND	49	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Chloronaphthalene	ND	47	120	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Chlorophenol	ND	53	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Chlorophenyl phenyl ether	ND	42	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Di-n-butyl phthalate	ND	140	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Di-n-octyl phthalate	ND	64	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Dibenz(a,h)anthracene	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Dibenzofuran	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,2-Dichlorobenzene	ND	40	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,3-Dichlorobenzene	ND	36	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,4-Dichlorobenzene	ND	42	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
3,3´-Dichlorobenzidine	ND	75	120	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Diethyl phthalate	ND	160	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Dimethyl phthalate	ND	46	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dichlorophenol	ND	41	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dimethylphenol	ND	36	150	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4,6-Dinitro-2-methylphenol	ND	42	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dinitrophenol	ND	25	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4-Dinitrotoluene	ND	61	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,6-Dinitrotoluene	ND	51	250	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Fluoranthene	ND	40	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Fluorene	ND	45	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachlorobenzene	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachlorobutadiene	ND	47	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachlorocyclopentadiene	ND	57	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Hexachloroethane	ND	44	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Indeno(1,2,3-cd)pyrene	ND	58	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Isophorone	ND	41	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1-Methylnaphthalene	70	46	100	JD	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Methylnaphthalene	110	41	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Methylphenol	ND	42	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
3+4-Methylphenol	ND	41	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
N-Nitrosodi-n-propylamine	ND	46	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
N-Nitrosodimethylamine	ND	74	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
N-Nitrosodiphenylamine	ND	52	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Naphthalene	57	47	100	JD	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Nitroaniline	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
3-Nitroaniline	ND	58	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Nitroaniline	ND	64	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Nitrobenzene	ND	41	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2-Nitrophenol	ND	43	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
4-Nitrophenol	ND	41	120	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	43	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Phenanthrene	ND	51	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Phenol	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Pyrene	ND	38	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Pyridine	ND	80	200	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
1,2,4-Trichlorobenzene	ND	46	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4,5-Trichlorophenol	ND	32	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
2,4,6-Trichlorophenol	ND	43	100	D	mg/Kg	50	8/24/2021 4:18:28 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/24/2021 4:18:28 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.4	0.079	0.21		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Toluene	0.24	0.053	0.41	J	mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Ethylbenzene	34	0.10	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Methyl tert-butyl ether (MTBE)	11	0.23	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,4-Trimethylbenzene	28	0.058	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,3,5-Trimethylbenzene	4.1	0.093	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.094	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.16	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Naphthalene	32	0.15	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1-Methylnaphthalene	38	4.7	16		mg/Kg	100	8/19/2021 5:32:07 PM	R80682
2-Methylnaphthalene	65	3.8	16		mg/Kg	100	8/19/2021 5:32:07 PM	R80682
Acetone	ND	1.3	6.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromobenzene	ND	0.087	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromodichloromethane	ND	0.052	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromoform	ND	0.099	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Bromomethane	ND	0.68	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2-Butanone	ND	1.8	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Carbon disulfide	ND	0.17	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Carbon tetrachloride	ND	0.046	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chlorobenzene	ND	0.074	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chloroethane	ND	0.15	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chloroform	ND	0.059	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Chloromethane	ND	0.14	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2-Chlorotoluene	ND	0.055	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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D	Sample Diluted Due to Matrix
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PQL	Practical Quanitative Limit
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.22	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
cis-1,2-DCE	ND	0.20	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
cis-1,3-Dichloropropene	ND	0.061	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.18	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Dibromochloromethane	ND	0.066	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Dibromomethane	ND	0.096	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dichlorobenzene	ND	0.086	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,3-Dichlorobenzene	ND	0.078	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,4-Dichlorobenzene	ND	0.11	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Dichlorodifluoromethane	ND	0.16	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1-Dichloroethane	ND	0.12	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1-Dichloroethene	ND	0.088	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2-Dichloropropane	ND	0.080	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,3-Dichloropropane	ND	0.091	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2,2-Dichloropropane	ND	0.059	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1-Dichloropropene	ND	0.050	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Hexachlorobutadiene	ND	0.28	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
2-Hexanone	ND	0.18	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Isopropylbenzene	4.7	0.076	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
4-Isopropyltoluene	2.7	0.11	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
4-Methyl-2-pentanone	ND	0.48	4.1		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Methylene chloride	ND	0.30	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
n-Butylbenzene	8.9	0.11	1.2		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
n-Propylbenzene	16	0.067	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
sec-Butylbenzene	4.8	0.34	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Styrene	ND	0.056	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
tert-Butylbenzene	0.14	0.095	0.41	J	mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.061	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.13	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Tetrachloroethene (PCE)	ND	0.11	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
trans-1,2-DCE	ND	0.080	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
trans-1,3-Dichloropropene	ND	0.097	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,3-Trichlorobenzene	ND	0.064	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,4-Trichlorobenzene	ND	0.14	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,1-Trichloroethane	ND	0.091	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,1,2-Trichloroethane	ND	0.10	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Trichloroethene (TCE)	ND	0.081	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Trichlorofluoromethane	ND	0.094	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
1,2,3-Trichloropropane	ND	0.17	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SB6 (3')
Project: Railcar Release Investigation **Collection Date:** 8/11/2021 4:25:00 PM
Lab ID: 2108721-032 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.079	0.41		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Xylenes, Total	18	0.22	0.82		mg/Kg	10	8/18/2021 8:15:20 PM	A80646
Surr: Dibromofluoromethane	99.1		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
Surr: Toluene-d8	104		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
Surr: 4-Bromofluorobenzene	88.0		70-130		%Rec	10	8/18/2021 8:15:20 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	1000	11	41		mg/Kg	10	8/18/2021 8:15:20 PM	B80646
Surr: BFB	91.8	0	70-130		%Rec	10	8/18/2021 8:15:20 PM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	12	4.8	9.7		mg/Kg	1	8/18/2021 1:30:24 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/18/2021 1:30:24 PM	62000
Surr: DNOP	116	0	70-130		%Rec	1	8/18/2021 1:30:24 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:20:23 PM	62062
Barium	360	10	20		mg/Kg	200	8/26/2021 6:15:50 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:20:23 PM	62062
Chromium	14	1.0	2.0		mg/Kg	20	8/27/2021 5:42:20 PM	62062
Lead	11	1.0	2.0		mg/Kg	20	8/28/2021 3:23:08 PM	62062
Selenium	1.3	1.2	2.0	J	mg/Kg	20	8/26/2021 6:20:23 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:20:23 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0074	0.0024	0.031	J	mg/Kg	1	8/25/2021 11:54:33 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Acenaphthylene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Aniline	ND	0.64	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Anthracene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Azobenzene	ND	0.93	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benz(a)anthracene	ND	0.60	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(a)pyrene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(b)fluoranthene	ND	0.99	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(g,h,i)perylene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzo(k)fluoranthene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzoic acid	ND	1.2	9.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Benzyl alcohol	ND	0.76	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-chloroethoxy)methane	ND	0.71	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-chloroethyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-chloroisopropyl)ether	ND	0.94	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Bis(2-ethylhexyl)phthalate	ND	2.0	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Bromophenyl phenyl ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Carbazole	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Chloro-3-methylphenol	ND	0.78	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Chloroaniline	ND	0.90	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Chloronaphthalene	ND	0.88	2.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Chlorophenol	ND	0.99	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Chlorophenyl phenyl ether	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Di-n-butyl phthalate	ND	2.6	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Di-n-octyl phthalate	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Dibenz(a,h)anthracene	ND	0.98	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Dibenzofuran	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,2-Dichlorobenzene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,3-Dichlorobenzene	ND	0.66	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,4-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
3,3´-Dichlorobenzidine	ND	1.4	2.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Diethyl phthalate	ND	3.0	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Dimethyl phthalate	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dichlorophenol	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dimethylphenol	ND	0.66	2.8	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4,6-Dinitro-2-methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dinitrophenol	ND	0.47	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4-Dinitrotoluene	ND	1.1	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,6-Dinitrotoluene	ND	0.95	4.6	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Fluoranthene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Fluorene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachlorobutadiene	ND	0.87	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Hexachloroethane	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Isophorone	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1-Methylnaphthalene	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Methylnaphthalene	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
3+4-Methylphenol	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
N-Nitrosodi-n-propylamine	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
N-Nitrosodiphenylamine	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Naphthalene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Nitroaniline	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Nitroaniline	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Nitrobenzene	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2-Nitrophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
4-Nitrophenol	ND	0.76	2.3	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.80	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Phenanthrene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Phenol	ND	0.72	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Pyrene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Pyridine	ND	1.5	3.7	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
1,2,4-Trichlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4,5-Trichlorophenol	ND	0.59	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
2,4,6-Trichlorophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 12:19:34 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 12:19:34 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0053	0.014		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Toluene	0.012	0.0035	0.027	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Ethylbenzene	ND	0.0067	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.015	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,4-Trimethylbenzene	0.013	0.0039	0.027	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,3,5-Trimethylbenzene	ND	0.0061	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.0062	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.011	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Naphthalene	ND	0.010	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1-Methylnaphthalene	ND	0.031	0.11		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Methylnaphthalene	0.032	0.025	0.11	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Acetone	ND	0.089	0.41		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromobenzene	ND	0.0058	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromodichloromethane	ND	0.0035	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromoform	ND	0.0066	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Bromomethane	ND	0.045	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Butanone	ND	0.12	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Carbon disulfide	ND	0.011	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Carbon tetrachloride	ND	0.0030	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chlorobenzene	ND	0.0049	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chloroethane	ND	0.010	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chloroform	ND	0.0039	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Chloromethane	ND	0.0096	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Chlorotoluene	ND	0.0037	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
cis-1,2-DCE	ND	0.014	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
cis-1,3-Dichloropropene	ND	0.0041	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.012	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Dibromochloromethane	ND	0.0044	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Dibromomethane	ND	0.0064	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dichlorobenzene	ND	0.0057	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,3-Dichlorobenzene	ND	0.0052	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,4-Dichlorobenzene	ND	0.0073	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Dichlorodifluoromethane	ND	0.011	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1-Dichloroethane	ND	0.0080	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1-Dichloroethene	ND	0.0059	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2-Dichloropropane	ND	0.0053	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,3-Dichloropropane	ND	0.0060	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2,2-Dichloropropane	ND	0.0039	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1-Dichloropropene	ND	0.0033	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Hexachlorobutadiene	ND	0.019	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
2-Hexanone	ND	0.012	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Isopropylbenzene	ND	0.0051	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
4-Isopropyltoluene	ND	0.0070	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
4-Methyl-2-pentanone	ND	0.032	0.27		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Methylene chloride	ND	0.020	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
n-Butylbenzene	ND	0.0073	0.082		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
n-Propylbenzene	ND	0.0044	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
sec-Butylbenzene	ND	0.023	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Styrene	ND	0.0037	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
tert-Butylbenzene	ND	0.0063	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0040	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.0088	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Tetrachloroethene (PCE)	ND	0.0075	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
trans-1,2-DCE	ND	0.0053	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
trans-1,3-Dichloropropene	ND	0.0064	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,3-Trichlorobenzene	ND	0.0042	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,4-Trichlorobenzene	ND	0.0095	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,1-Trichloroethane	ND	0.0060	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,1,2-Trichloroethane	ND	0.0068	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Trichloroethene (TCE)	ND	0.0054	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Trichlorofluoromethane	ND	0.0062	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
1,2,3-Trichloropropane	ND	0.011	0.055		mg/Kg	1	8/18/2021 9:12:37 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:00:00 AM
Lab ID: 2108721-033 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0052	0.027		mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Xylenes, Total	0.017	0.014	0.055	J	mg/Kg	1	8/18/2021 9:12:37 PM	A80646
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
Surr: 1,2-Dichloroethane-d4	96.6		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
Surr: Toluene-d8	104		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
Surr: 4-Bromofluorobenzene	88.1		70-130		%Rec	1	8/18/2021 9:12:37 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.76	2.7		mg/Kg	1	8/18/2021 9:12:37 PM	B80646
Surr: BFB	91.1	0	70-130		%Rec	1	8/18/2021 9:12:37 PM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	18	4.9	9.9		mg/Kg	1	8/17/2021 4:54:23 PM	62000
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/17/2021 4:54:23 PM	62000
Surr: DNOP	113	0	70-130		%Rec	1	8/17/2021 4:54:23 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:38:41 PM	62062
Barium	340	10	20		mg/Kg	200	8/26/2021 6:34:07 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:38:41 PM	62062
Chromium	20	1.0	2.0		mg/Kg	20	8/27/2021 5:46:55 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/28/2021 3:26:36 PM	62062
Selenium	1.7	1.2	2.0	J	mg/Kg	20	8/26/2021 6:38:41 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:38:41 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0083	0.0026	0.033	J	mg/Kg	1	8/25/2021 11:56:42 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.85	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Acenaphthylene	ND	0.86	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Aniline	ND	0.66	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Anthracene	ND	0.86	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Azobenzene	ND	0.95	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benz(a)anthracene	ND	0.61	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(a)pyrene	ND	0.90	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(b)fluoranthene	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(g,h,i)perylene	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzo(k)fluoranthene	ND	0.72	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzoic acid	ND	1.2	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Benzyl alcohol	ND	0.78	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-chloroethoxy)methane	ND	0.73	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-chloroisopropyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.0	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Bromophenyl phenyl ether	ND	0.99	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Butyl benzyl phthalate	ND	0.58	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Carbazole	ND	0.84	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Chloro-3-methylphenol	ND	0.80	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Chloroaniline	ND	0.93	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Chloronaphthalene	ND	0.90	2.4	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Chlorophenyl phenyl ether	ND	0.81	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.84	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Di-n-butyl phthalate	ND	2.7	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Di-n-octyl phthalate	ND	1.2	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Dibenz(a,h)anthracene	ND	1.0	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Dibenzofuran	ND	0.99	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,2-Dichlorobenzene	ND	0.77	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,3-Dichlorobenzene	ND	0.68	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,4-Dichlorobenzene	ND	0.81	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
3,3´-Dichlorobenzidine	ND	1.4	2.4	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Diethyl phthalate	ND	3.1	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Dimethyl phthalate	ND	0.88	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dichlorophenol	ND	0.77	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dimethylphenol	ND	0.68	2.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dinitrophenol	ND	0.48	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4-Dinitrotoluene	ND	1.2	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,6-Dinitrotoluene	ND	0.97	4.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Fluoranthene	ND	0.77	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Fluorene	ND	0.85	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachlorobutadiene	ND	0.89	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Hexachloroethane	ND	0.84	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Isophorone	ND	0.78	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1-Methylnaphthalene	ND	0.88	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Methylnaphthalene	ND	0.79	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Methylphenol	ND	0.80	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
3+4-Methylphenol	ND	0.79	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
N-Nitrosodi-n-propylamine	ND	0.88	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
N-Nitrosodiphenylamine	ND	0.99	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Naphthalene	ND	0.90	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Nitroaniline	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Nitrobenzene	ND	0.78	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2-Nitrophenol	ND	0.82	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
4-Nitrophenol	ND	0.78	2.4	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.82	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Phenanthrene	ND	0.97	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Phenol	ND	0.73	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Pyrene	ND	0.72	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Pyridine	ND	1.5	3.8	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
1,2,4-Trichlorobenzene	ND	0.87	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4,5-Trichlorophenol	ND	0.61	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
2,4,6-Trichlorophenol	ND	0.82	1.9	D	mg/Kg	10	8/24/2021 5:41:34 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 5:41:34 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0067	0.017		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Toluene	0.0051	0.0045	0.035	J	mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Ethylbenzene	ND	0.0084	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Methyl tert-butyl ether (MTBE)	0.054	0.020	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,4-Trimethylbenzene	0.0097	0.0049	0.035	J	mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,3,5-Trimethylbenzene	ND	0.0078	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.0079	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.014	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Naphthalene	ND	0.013	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1-Methylnaphthalene	ND	0.040	0.14		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Methylnaphthalene	ND	0.032	0.14		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Acetone	ND	0.11	0.52		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromobenzene	ND	0.0074	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromodichloromethane	ND	0.0044	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromoform	ND	0.0084	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Bromomethane	ND	0.057	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Butanone	ND	0.15	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Carbon disulfide	ND	0.014	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Carbon tetrachloride	ND	0.0039	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chlorobenzene	ND	0.0062	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chloroethane	ND	0.013	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chloroform	ND	0.0049	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Chlorotoluene	ND	0.0046	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
cis-1,2-DCE	ND	0.017	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
cis-1,3-Dichloropropene	ND	0.0052	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.015	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Dibromochloromethane	ND	0.0055	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Dibromomethane	ND	0.0081	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dichlorobenzene	ND	0.0072	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,3-Dichlorobenzene	ND	0.0065	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,4-Dichlorobenzene	ND	0.0093	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Dichlorodifluoromethane	ND	0.013	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1-Dichloroethane	ND	0.010	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1-Dichloroethene	ND	0.0074	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2-Dichloropropane	ND	0.0068	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,3-Dichloropropane	ND	0.0076	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2,2-Dichloropropane	ND	0.0049	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1-Dichloropropene	ND	0.0042	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Hexachlorobutadiene	ND	0.024	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
2-Hexanone	ND	0.015	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Isopropylbenzene	ND	0.0064	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
4-Isopropyltoluene	ND	0.0089	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
4-Methyl-2-pentanone	ND	0.040	0.35		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Methylene chloride	ND	0.025	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
n-Butylbenzene	ND	0.0093	0.10		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
n-Propylbenzene	ND	0.0056	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
sec-Butylbenzene	ND	0.029	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Styrene	ND	0.0047	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
tert-Butylbenzene	ND	0.0080	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0051	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Tetrachloroethene (PCE)	ND	0.0095	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
trans-1,2-DCE	ND	0.0067	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
trans-1,3-Dichloropropene	ND	0.0081	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,3-Trichlorobenzene	ND	0.0054	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,1-Trichloroethane	ND	0.0076	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,1,2-Trichloroethane	ND	0.0087	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Trichloroethene (TCE)	ND	0.0068	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Trichlorofluoromethane	ND	0.0079	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
1,2,3-Trichloropropane	ND	0.015	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS1 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:05:00 AM
Lab ID: 2108721-034 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0066	0.035		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Xylenes, Total	ND	0.018	0.069		mg/Kg	1	8/18/2021 9:41:15 PM	A80646
Surr: Dibromofluoromethane	107		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.4		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
Surr: Toluene-d8	104		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
Surr: 4-Bromofluorobenzene	92.4		70-130		%Rec	1	8/18/2021 9:41:15 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.96	3.5		mg/Kg	1	8/18/2021 9:41:15 PM	B80646
Surr: BFB	95.6	0	70-130		%Rec	1	8/18/2021 9:41:15 PM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	470	4.8	9.6		mg/Kg	1	8/17/2021 5:04:07 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 5:04:07 PM	62000
Surr: DNOP	115	0	70-130		%Rec	1	8/17/2021 5:04:07 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:47:48 PM	62062
Barium	280	10	20		mg/Kg	200	8/26/2021 6:43:15 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:47:48 PM	62062
Chromium	18	1.0	2.0		mg/Kg	20	8/27/2021 6:00:41 PM	62062
Lead	13	1.0	2.0		mg/Kg	20	8/30/2021 12:52:18 PM	62062
Selenium	1.5	1.2	2.0	J	mg/Kg	20	8/26/2021 6:47:48 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:47:48 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0084	0.0027	0.034	J	mg/Kg	1	8/25/2021 11:58:51 AM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 6:23:09 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 6:23:09 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.013	0.0064	0.017	J	mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Toluene	0.039	0.0043	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Ethylbenzene	0.18	0.0081	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Methyl tert-butyl ether (MTBE)	0.039	0.019	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,4-Trimethylbenzene	0.43	0.0047	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,3,5-Trimethylbenzene	0.47	0.0074	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dichloroethane (EDC)	ND	0.0076	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dibromoethane (EDB)	ND	0.013	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Naphthalene	ND	0.012	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1-Methylnaphthalene	0.62	0.038	0.13		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Methylnaphthalene	0.52	0.031	0.13		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Acetone	ND	0.11	0.50		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromobenzene	ND	0.0070	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromodichloromethane	ND	0.0042	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromoform	ND	0.0080	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Bromomethane	ND	0.055	0.10		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Butanone	ND	0.14	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Carbon disulfide	ND	0.014	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Carbon tetrachloride	ND	0.0037	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chlorobenzene	ND	0.0060	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chloroethane	ND	0.012	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chloroform	ND	0.0047	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Chlorotoluene	ND	0.0044	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646

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Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.017	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
cis-1,2-DCE	ND	0.016	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
cis-1,3-Dichloropropene	ND	0.0049	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dibromo-3-chloropropane	ND	0.014	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Dibromochloromethane	ND	0.0053	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Dibromomethane	ND	0.0078	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dichlorobenzene	ND	0.0069	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,3-Dichlorobenzene	ND	0.0063	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,4-Dichlorobenzene	ND	0.0089	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Dichlorodifluoromethane	ND	0.013	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1-Dichloroethane	ND	0.0097	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1-Dichloroethene	ND	0.0071	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2-Dichloropropane	ND	0.0065	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,3-Dichloropropane	ND	0.0073	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2,2-Dichloropropane	ND	0.0047	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1-Dichloropropene	ND	0.0040	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Hexachlorobutadiene	ND	0.023	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
2-Hexanone	ND	0.014	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Isopropylbenzene	ND	0.0062	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
4-Isopropyltoluene	0.13	0.0085	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
4-Methyl-2-pentanone	ND	0.039	0.33		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Methylene chloride	ND	0.024	0.10		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
n-Butylbenzene	0.089	0.0089	0.10	J	mg/Kg	1	8/18/2021 10:09:53 PM	A80646
n-Propylbenzene	0.084	0.0054	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
sec-Butylbenzene	0.057	0.027	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Styrene	ND	0.0045	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
tert-Butylbenzene	ND	0.0077	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0049	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Tetrachloroethene (PCE)	ND	0.0091	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
trans-1,2-DCE	ND	0.0064	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
trans-1,3-Dichloropropene	ND	0.0078	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,3-Trichlorobenzene	ND	0.0051	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,1-Trichloroethane	ND	0.0073	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,1,2-Trichloroethane	ND	0.0083	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Trichloroethene (TCE)	ND	0.0065	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Trichlorofluoromethane	ND	0.0075	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
1,2,3-Trichloropropane	ND	0.014	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS2 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:10:00 AM
Lab ID: 2108721-035 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0063	0.033		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Xylenes, Total	0.13	0.017	0.066		mg/Kg	1	8/18/2021 10:09:53 PM	A80646
Surr: Dibromofluoromethane	102		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
Surr: 1,2-Dichloroethane-d4	99.1		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
Surr: Toluene-d8	105		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
Surr: 4-Bromofluorobenzene	95.0		70-130		%Rec	1	8/18/2021 10:09:53 PM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	24	0.92	3.3		mg/Kg	1	8/18/2021 10:09:53 PM	B80646
Surr: BFB	93.0	0	70-130		%Rec	1	8/18/2021 10:09:53 PM	B80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon
Client Sample ID: RCR-SS2 (1')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	430	4.7	9.6		mg/Kg	1	8/17/2021 5:13:54 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/17/2021 5:13:54 PM	62000
Surr: DNOP	110	0	70-130		%Rec	1	8/17/2021 5:13:54 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:56:57 PM	62062
Barium	280	10	20		mg/Kg	200	8/26/2021 6:52:23 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:56:57 PM	62062
Chromium	19	1.0	2.0		mg/Kg	20	8/27/2021 6:05:16 PM	62062
Lead	14	1.0	2.0		mg/Kg	20	8/30/2021 12:55:46 PM	62062
Selenium	1.6	1.1	2.0	J	mg/Kg	20	8/26/2021 6:56:57 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 6:56:57 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0080	0.0026	0.033	J	mg/Kg	1	8/25/2021 12:01:01 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Methylnaphthalene	1.1	0.82	2.0	JD	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/24/2021 7:04:46 AM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/24/2021 7:04:46 AM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.011	0.0062	0.016	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Toluene	0.0079	0.0041	0.032	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Ethylbenzene	0.36	0.0078	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Methyl tert-butyl ether (MTBE)	0.098	0.018	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,4-Trimethylbenzene	1.9	0.0045	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,3,5-Trimethylbenzene	1.4	0.0072	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0073	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.013	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Naphthalene	0.64	0.012	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1-Methylnaphthalene	2.9	0.037	0.13		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Methylnaphthalene	3.2	0.030	0.13		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Acetone	ND	0.10	0.48		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromobenzene	ND	0.0068	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromodichloromethane	ND	0.0041	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromoform	ND	0.0077	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Bromomethane	ND	0.053	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Butanone	ND	0.14	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Carbon disulfide	ND	0.013	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Carbon tetrachloride	ND	0.0036	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chlorobenzene	ND	0.0058	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chloroethane	ND	0.012	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chloroform	ND	0.0045	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Chloromethane	ND	0.011	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Chlorotoluene	ND	0.0043	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.017	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
cis-1,2-DCE	ND	0.016	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
cis-1,3-Dichloropropene	ND	0.0048	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.014	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Dibromochloromethane	ND	0.0051	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Dibromomethane	ND	0.0075	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dichlorobenzene	ND	0.0066	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,3-Dichlorobenzene	ND	0.0060	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,4-Dichlorobenzene	ND	0.0085	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Dichlorodifluoromethane	ND	0.012	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1-Dichloroethane	ND	0.0093	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1-Dichloroethene	ND	0.0069	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2-Dichloropropane	ND	0.0062	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,3-Dichloropropane	ND	0.0070	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2,2-Dichloropropane	ND	0.0045	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1-Dichloropropene	ND	0.0039	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Hexachlorobutadiene	ND	0.022	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
2-Hexanone	ND	0.014	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Isopropylbenzene	0.11	0.0059	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
4-Isopropyltoluene	0.41	0.0082	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
4-Methyl-2-pentanone	ND	0.037	0.32		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Methylene chloride	ND	0.023	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
n-Butylbenzene	0.47	0.0085	0.096		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
n-Propylbenzene	0.41	0.0052	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
sec-Butylbenzene	0.32	0.026	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Styrene	ND	0.0044	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
tert-Butylbenzene	0.010	0.0074	0.032	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0047	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.010	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Tetrachloroethene (PCE)	ND	0.0088	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
trans-1,2-DCE	ND	0.0062	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
trans-1,3-Dichloropropene	ND	0.0075	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0049	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,4-Trichlorobenzene	ND	0.011	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,1-Trichloroethane	ND	0.0071	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,1,2-Trichloroethane	ND	0.0080	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Trichloroethene (TCE)	ND	0.0063	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Trichlorofluoromethane	ND	0.0073	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
1,2,3-Trichloropropane	ND	0.013	0.064		mg/Kg	1	8/19/2021 1:01:37 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS2 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:15:00 AM
Lab ID: 2108721-036 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0061	0.032		mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Xylenes, Total	0.048	0.017	0.064	J	mg/Kg	1	8/19/2021 1:01:37 AM	A80646
Surr: Dibromofluoromethane	93.0		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
Surr: 1,2-Dichloroethane-d4	98.0		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
Surr: Toluene-d8	102		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
Surr: 4-Bromofluorobenzene	87.3		70-130		%Rec	1	8/19/2021 1:01:37 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	74	0.89	3.2		mg/Kg	1	8/19/2021 1:01:37 AM	B80646
Surr: BFB	87.6	0	70-130		%Rec	1	8/19/2021 1:01:37 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	7600	95	190		mg/Kg	20	8/17/2021 5:23:41 PM	62000
Motor Oil Range Organics (MRO)	ND	960	960		mg/Kg	20	8/17/2021 5:23:41 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 5:23:41 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	1.0	2.1	J	mg/Kg	20	8/26/2021 7:06:03 PM	62062
Barium	360	10	21		mg/Kg	200	8/26/2021 7:01:30 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:06:03 PM	62062
Chromium	15	2.6	5.2		mg/Kg	50	8/27/2021 6:09:51 PM	62062
Lead	66	2.6	5.2		mg/Kg	50	8/30/2021 1:02:45 PM	62062
Selenium	ND	1.2	2.1		mg/Kg	20	8/26/2021 7:06:03 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:06:03 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.20	0.0024	0.031		mg/Kg	1	8/25/2021 12:07:29 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Acenaphthylene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Aniline	ND	13	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Anthracene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Azobenzene	ND	19	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benz(a)anthracene	ND	12	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(a)pyrene	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(b)fluoranthene	ND	21	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(g,h,i)perylene	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzo(k)fluoranthene	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzoic acid	ND	24	190	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Benzyl alcohol	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-chloroethoxy)methane	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-chloroethyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-chloroisopropyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Bis(2-ethylhexyl)phthalate	ND	42	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Bromophenyl phenyl ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Butyl benzyl phthalate	ND	12	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Carbazole	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Chloro-3-methylphenol	ND	16	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Chloroaniline	ND	19	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Chloronaphthalene	ND	18	48	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Chlorophenol	ND	21	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Chlorophenyl phenyl ether	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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ND	Not Detected at the Reporting Limit
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Di-n-butyl phthalate	ND	54	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Di-n-octyl phthalate	ND	25	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Dibenz(a,h)anthracene	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Dibenzofuran	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,2-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,3-Dichlorobenzene	ND	14	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,4-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
3,3´-Dichlorobenzidine	ND	29	48	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Diethyl phthalate	ND	63	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Dimethyl phthalate	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dichlorophenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dimethylphenol	ND	14	58	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4,6-Dinitro-2-methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dinitrophenol	ND	9.7	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4-Dinitrotoluene	ND	23	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,6-Dinitrotoluene	ND	20	96	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Fluoranthene	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Fluorene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachlorobenzene	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachlorobutadiene	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachlorocyclopentadiene	ND	22	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Hexachloroethane	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Indeno(1,2,3-cd)pyrene	ND	22	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Isophorone	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1-Methylnaphthalene	21	18	39	JD	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Methylnaphthalene	35	16	39	JD	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
3+4-Methylphenol	ND	16	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
N-Nitrosodi-n-propylamine	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
N-Nitrosodimethylamine	ND	29	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
N-Nitrosodiphenylamine	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Naphthalene	24	18	39	JD	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Nitroaniline	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
3-Nitroaniline	ND	22	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Nitroaniline	ND	25	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Nitrobenzene	ND	16	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2-Nitrophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
4-Nitrophenol	ND	16	48	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	17	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Phenanthrene	ND	20	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Phenol	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Pyrene	ND	15	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Pyridine	ND	31	77	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
1,2,4-Trichlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4,5-Trichlorophenol	ND	12	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
2,4,6-Trichlorophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:01:05 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/31/2021 1:01:05 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.0	0.030	0.079		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Toluene	18	0.20	1.6		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
Ethylbenzene	16	0.038	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.089	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,4-Trimethylbenzene	49	0.22	1.6		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
1,3,5-Trimethylbenzene	18	0.35	1.6		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
1,2-Dichloroethane (EDC)	ND	0.036	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.062	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Naphthalene	10	0.059	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1-Methylnaphthalene	7.4	0.18	0.63		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Methylnaphthalene	13	0.15	0.63		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Acetone	ND	0.52	2.4		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromobenzene	ND	0.034	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromodichloromethane	ND	0.020	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromoform	ND	0.038	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Bromomethane	ND	0.26	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Butanone	ND	0.69	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Carbon disulfide	ND	0.065	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Carbon tetrachloride	ND	0.018	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chlorobenzene	ND	0.028	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chloroethane	ND	0.059	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chloroform	ND	0.022	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Chloromethane	ND	0.055	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Chlorotoluene	ND	0.021	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.083	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
cis-1,2-DCE	ND	0.078	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
cis-1,3-Dichloropropene	ND	0.023	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.068	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Dibromochloromethane	ND	0.025	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Dibromomethane	ND	0.037	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dichlorobenzene	ND	0.033	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,3-Dichlorobenzene	ND	0.030	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,4-Dichlorobenzene	ND	0.042	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Dichlorodifluoromethane	ND	0.061	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1-Dichloroethane	ND	0.046	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1-Dichloroethene	ND	0.034	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2-Dichloropropane	ND	0.031	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,3-Dichloropropane	ND	0.035	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2,2-Dichloropropane	ND	0.022	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1-Dichloropropene	ND	0.019	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Hexachlorobutadiene	ND	0.11	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
2-Hexanone	ND	0.069	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Isopropylbenzene	1.5	0.029	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
4-Isopropyltoluene	0.49	0.041	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
4-Methyl-2-pentanone	ND	0.18	1.6		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Methylene chloride	ND	0.11	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
n-Butylbenzene	1.9	0.042	0.47		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
n-Propylbenzene	5.8	0.026	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
sec-Butylbenzene	0.64	0.13	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Styrene	ND	0.022	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
tert-Butylbenzene	ND	0.037	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.023	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.051	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Tetrachloroethene (PCE)	ND	0.043	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
trans-1,2-DCE	ND	0.031	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
trans-1,3-Dichloropropene	ND	0.037	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,3-Trichlorobenzene	ND	0.024	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,4-Trichlorobenzene	ND	0.055	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,1-Trichloroethane	ND	0.035	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,1,2-Trichloroethane	ND	0.040	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Trichloroethene (TCE)	ND	0.031	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Trichlorofluoromethane	ND	0.036	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
1,2,3-Trichloropropane	ND	0.067	0.32		mg/Kg	5	8/19/2021 1:58:44 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:20:00 AM
Lab ID: 2108721-037 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.030	0.16		mg/Kg	5	8/19/2021 1:58:44 AM	A80646
Xylenes, Total	70	0.83	3.2		mg/Kg	50	8/19/2021 6:00:51 PM	R80682
Surr: Dibromofluoromethane	94.4		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
Surr: Toluene-d8	99.9		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
Surr: 4-Bromofluorobenzene	91.0		70-130		%Rec	5	8/19/2021 1:58:44 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	700	4.4	16		mg/Kg	5	8/19/2021 1:58:44 AM	B80646
Surr: BFB	91.3	0	70-130		%Rec	5	8/19/2021 1:58:44 AM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	6700	91	190		mg/Kg	20	8/17/2021 5:33:25 PM	62000
Motor Oil Range Organics (MRO)	ND	930	930	D	mg/Kg	20	8/17/2021 5:33:25 PM	62000
Surr: DNOP	0	0	70-130	S	%Rec	20	8/17/2021 5:33:25 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	0.96	1.9	J	mg/Kg	20	8/26/2021 7:15:08 PM	62062
Barium	370	9.6	19		mg/Kg	200	8/26/2021 7:10:35 PM	62062
Cadmium	1.2	0.96	1.9	J	mg/Kg	20	8/26/2021 7:15:08 PM	62062
Chromium	18	0.96	1.9		mg/Kg	20	8/27/2021 6:14:25 PM	62062
Lead	68	0.96	1.9		mg/Kg	20	8/30/2021 1:06:13 PM	62062
Selenium	1.1	1.1	1.9	J	mg/Kg	20	8/26/2021 7:15:08 PM	62062
Silver	ND	0.96	1.9		mg/Kg	20	8/26/2021 7:15:08 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.031	0.0024	0.031		mg/Kg	1	8/25/2021 12:09:38 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Acenaphthylene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Aniline	ND	13	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Anthracene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Azobenzene	ND	19	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benz(a)anthracene	ND	12	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(a)pyrene	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(b)fluoranthene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(g,h,i)perylene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzo(k)fluoranthene	ND	14	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzoic acid	ND	24	190	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Benzyl alcohol	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-chloroethoxy)methane	ND	15	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-chloroethyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-chloroisopropyl)ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Bis(2-ethylhexyl)phthalate	ND	41	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Bromophenyl phenyl ether	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Butyl benzyl phthalate	ND	12	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Carbazole	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Chloro-3-methylphenol	ND	16	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Chloroaniline	ND	19	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Chloronaphthalene	ND	18	48	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Chlorophenol	ND	21	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Chlorophenyl phenyl ether	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017

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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Di-n-butyl phthalate	ND	54	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Di-n-octyl phthalate	ND	25	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Dibenz(a,h)anthracene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Dibenzofuran	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,2-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,3-Dichlorobenzene	ND	14	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,4-Dichlorobenzene	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
3,3´-Dichlorobenzidine	ND	29	48	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Diethyl phthalate	ND	63	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Dimethyl phthalate	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dichlorophenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dimethylphenol	ND	14	58	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4,6-Dinitro-2-methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dinitrophenol	ND	9.7	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4-Dinitrotoluene	ND	23	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,6-Dinitrotoluene	ND	20	96	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Fluoranthene	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Fluorene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachlorobenzene	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachlorobutadiene	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachlorocyclopentadiene	ND	22	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Hexachloroethane	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Indeno(1,2,3-cd)pyrene	ND	22	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Isophorone	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1-Methylnaphthalene	23	18	39	JD	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Methylnaphthalene	39	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Methylphenol	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
3+4-Methylphenol	ND	16	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
N-Nitrosodi-n-propylamine	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
N-Nitrosodimethylamine	ND	29	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
N-Nitrosodiphenylamine	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Naphthalene	26	18	39	JD	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Nitroaniline	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
3-Nitroaniline	ND	22	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Nitroaniline	ND	25	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Nitrobenzene	ND	16	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2-Nitrophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
4-Nitrophenol	ND	16	48	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	17	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Phenanthrene	ND	20	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Phenol	ND	15	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Pyrene	ND	15	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Pyridine	ND	31	77	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
1,2,4-Trichlorobenzene	ND	18	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4,5-Trichlorophenol	ND	12	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
2,4,6-Trichlorophenol	ND	17	39	D	mg/Kg	20	8/31/2021 1:42:26 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/31/2021 1:42:26 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	6.3	0.26	0.69		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Toluene	23	0.18	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Ethylbenzene	20	0.33	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Methyl tert-butyl ether (MTBE)	0.10	0.031	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,4-Trimethylbenzene	56	0.19	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
1,3,5-Trimethylbenzene	14	0.31	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
1,2-Dichloroethane (EDC)	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.022	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Naphthalene	13	0.51	2.7		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
1-Methylnaphthalene	7.0	1.6	5.5		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
2-Methylnaphthalene	13	1.3	5.5		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Acetone	ND	0.18	0.82		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromobenzene	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromodichloromethane	ND	0.0070	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromoform	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Bromomethane	ND	0.091	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2-Butanone	ND	0.24	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Carbon disulfide	ND	0.023	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Carbon tetrachloride	ND	0.0061	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chlorobenzene	ND	0.0099	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chloroethane	ND	0.020	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chloroform	ND	0.0078	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Chloromethane	ND	0.019	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2-Chlorotoluene	ND	0.0073	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.029	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
cis-1,2-DCE	ND	0.027	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
cis-1,3-Dichloropropene	ND	0.0081	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.024	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Dibromochloromethane	ND	0.0088	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Dibromomethane	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dichlorobenzene	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,3-Dichlorobenzene	ND	0.010	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,4-Dichlorobenzene	ND	0.015	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Dichlorodifluoromethane	ND	0.021	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1-Dichloroethane	ND	0.016	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1-Dichloroethene	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2-Dichloropropane	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,3-Dichloropropane	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2,2-Dichloropropane	ND	0.0078	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1-Dichloropropene	ND	0.0066	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Hexachlorobutadiene	ND	0.037	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
2-Hexanone	ND	0.024	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Isopropylbenzene	1.8	0.010	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
4-Isopropyltoluene	0.48	0.014	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
4-Methyl-2-pentanone	ND	0.064	0.55		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Methylene chloride	ND	0.040	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
n-Butylbenzene	1.9	0.015	0.16		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
n-Propylbenzene	6.6	0.22	1.4		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
sec-Butylbenzene	0.67	0.045	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Styrene	0.022	0.0075	0.055	J	mg/Kg	2	8/19/2021 2:55:54 AM	A80646
tert-Butylbenzene	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0080	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.018	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Tetrachloroethene (PCE)	ND	0.015	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
trans-1,2-DCE	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
trans-1,3-Dichloropropene	ND	0.013	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0085	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,4-Trichlorobenzene	ND	0.019	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,1-Trichloroethane	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,1,2-Trichloroethane	ND	0.014	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Trichloroethene (TCE)	ND	0.011	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Trichlorofluoromethane	ND	0.012	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
1,2,3-Trichloropropane	ND	0.023	0.11		mg/Kg	2	8/19/2021 2:55:54 AM	A80646

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Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS3 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:25:00 AM
Lab ID: 2108721-038 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.010	0.055		mg/Kg	2	8/19/2021 2:55:54 AM	A80646
Xylenes, Total	85	0.72	2.7		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Surr: Dibromofluoromethane	91.4		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
Surr: 1,2-Dichloroethane-d4	95.7		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
Surr: Toluene-d8	101		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
Surr: 4-Bromofluorobenzene	85.9		70-130		%Rec	2	8/19/2021 2:55:54 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	770	38	140		mg/Kg	50	8/19/2021 3:37:18 PM	R80682
Surr: BFB	95.0	0	70-130		%Rec	50	8/19/2021 3:37:18 PM	R80682

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1500	9.9	20		mg/Kg	2	8/18/2021 7:01:30 PM	62000
Motor Oil Range Organics (MRO)	440	100	100		mg/Kg	2	8/18/2021 7:01:30 PM	62000
Surr: DNOP	127	0	70-130		%Rec	2	8/18/2021 7:01:30 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 7:37:54 PM	62062
Barium	260	10	20		mg/Kg	200	8/26/2021 7:33:22 PM	62062
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 7:37:54 PM	62062
Chromium	15	1.0	2.0		mg/Kg	20	8/27/2021 6:18:58 PM	62062
Lead	12	1.0	2.0		mg/Kg	20	8/30/2021 1:09:41 PM	62062
Selenium	1.4	1.2	2.0	J	mg/Kg	20	8/26/2021 7:37:54 PM	62062
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 7:37:54 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.013	0.0026	0.033	J	mg/Kg	1	8/25/2021 12:11:48 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Acenaphthylene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Aniline	ND	3.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Anthracene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Azobenzene	ND	5.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benz(a)anthracene	ND	3.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(a)pyrene	ND	4.7	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(b)fluoranthene	ND	5.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(g,h,i)perylene	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzo(k)fluoranthene	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzoic acid	ND	6.2	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Benzyl alcohol	ND	4.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-chloroethoxy)methane	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-chloroethyl)ether	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-chloroisopropyl)ether	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Bis(2-ethylhexyl)phthalate	ND	11	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Bromophenyl phenyl ether	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Butyl benzyl phthalate	ND	3.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Carbazole	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Chloro-3-methylphenol	ND	4.2	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Chloroaniline	ND	4.9	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Chloronaphthalene	ND	4.7	12	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Chlorophenol	ND	5.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Chlorophenyl phenyl ether	ND	4.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Di-n-butyl phthalate	ND	14	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Di-n-octyl phthalate	ND	6.4	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Dibenz(a,h)anthracene	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Dibenzofuran	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,2-Dichlorobenzene	ND	4.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,3-Dichlorobenzene	ND	3.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,4-Dichlorobenzene	ND	4.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
3,3´-Dichlorobenzidine	ND	7.5	12	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Diethyl phthalate	ND	16	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Dimethyl phthalate	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dichlorophenol	ND	4.1	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dimethylphenol	ND	3.5	15	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4,6-Dinitro-2-methylphenol	ND	4.2	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dinitrophenol	ND	2.5	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4-Dinitrotoluene	ND	6.1	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,6-Dinitrotoluene	ND	5.1	25	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Fluoranthene	ND	4.0	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Fluorene	ND	4.5	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachlorobenzene	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachlorobutadiene	ND	4.7	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachlorocyclopentadiene	ND	5.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Hexachloroethane	ND	4.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Indeno(1,2,3-cd)pyrene	ND	5.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Isophorone	ND	4.1	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1-Methylnaphthalene	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Methylnaphthalene	ND	4.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Methylphenol	ND	4.2	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
3+4-Methylphenol	ND	4.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
N-Nitrosodi-n-propylamine	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
N-Nitrosodimethylamine	ND	7.4	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
N-Nitrosodiphenylamine	ND	5.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Naphthalene	ND	4.7	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Nitroaniline	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
3-Nitroaniline	ND	5.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Nitroaniline	ND	6.4	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Nitrobenzene	ND	4.1	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2-Nitrophenol	ND	4.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
4-Nitrophenol	ND	4.1	12	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017

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H	Holding times for preparation or analysis exceeded
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	4.3	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Phenanthrene	ND	5.1	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Phenol	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Pyrene	ND	3.8	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Pyridine	ND	8.0	20	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
1,2,4-Trichlorobenzene	ND	4.6	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4,5-Trichlorophenol	ND	3.2	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
2,4,6-Trichlorophenol	ND	4.3	10	D	mg/Kg	50	8/25/2021 7:29:24 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	50	8/25/2021 7:29:24 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.15	0.010	0.027		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Toluene	0.16	0.0069	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Ethylbenzene	0.95	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Methyl tert-butyl ether (MTBE)	0.86	0.030	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,4-Trimethylbenzene	3.3	0.0076	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,3,5-Trimethylbenzene	0.22	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.021	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Naphthalene	1.3	0.020	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1-Methylnaphthalene	3.8	0.061	0.21		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Methylnaphthalene	3.9	0.050	0.21		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Acetone	ND	0.17	0.80		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromobenzene	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromodichloromethane	ND	0.0068	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromoform	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Bromomethane	ND	0.089	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Butanone	ND	0.23	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Carbon disulfide	ND	0.022	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Carbon tetrachloride	ND	0.0060	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chlorobenzene	ND	0.0096	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chloroethane	ND	0.020	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chloroform	ND	0.0076	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Chloromethane	ND	0.019	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Chlorotoluene	ND	0.0072	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.028	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
cis-1,2-DCE	ND	0.027	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
cis-1,3-Dichloropropene	ND	0.0080	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.023	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Dibromochloromethane	ND	0.0086	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Dibromomethane	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dichlorobenzene	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,3-Dichlorobenzene	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,4-Dichlorobenzene	ND	0.014	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Dichlorodifluoromethane	ND	0.021	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1-Dichloroethane	ND	0.016	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1-Dichloroethene	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2-Dichloropropane	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,3-Dichloropropane	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2,2-Dichloropropane	ND	0.0076	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1-Dichloropropene	ND	0.0065	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Hexachlorobutadiene	ND	0.036	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
2-Hexanone	ND	0.023	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Isopropylbenzene	0.17	0.0099	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
4-Isopropyltoluene	0.089	0.014	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
4-Methyl-2-pentanone	ND	0.062	0.54		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Methylene chloride	ND	0.039	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
n-Butylbenzene	0.66	0.014	0.16		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
n-Propylbenzene	0.61	0.0087	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
sec-Butylbenzene	0.25	0.044	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Styrene	ND	0.0073	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
tert-Butylbenzene	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0079	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.017	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Tetrachloroethene (PCE)	ND	0.015	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
trans-1,2-DCE	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
trans-1,3-Dichloropropene	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0083	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,4-Trichlorobenzene	ND	0.019	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,1-Trichloroethane	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,1,2-Trichloroethane	ND	0.013	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Trichloroethene (TCE)	ND	0.011	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Trichlorofluoromethane	ND	0.012	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
1,2,3-Trichloropropane	ND	0.023	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:30:00 AM
Lab ID: 2108721-039 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.010	0.054		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Xylenes, Total	2.8	0.028	0.11		mg/Kg	2	8/19/2021 3:52:59 AM	A80646
Surr: Dibromofluoromethane	101		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
Surr: Toluene-d8	103		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
Surr: 4-Bromofluorobenzene	93.9		70-130		%Rec	2	8/19/2021 3:52:59 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	35	1.5	5.4		mg/Kg	2	8/19/2021 3:52:59 AM	B80646
Surr: BFB	101	0	70-130		%Rec	2	8/19/2021 3:52:59 AM	B80646

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	770	4.8	9.7		mg/Kg	1	8/18/2021 12:43:11 PM	62000
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	8/18/2021 12:43:11 PM	62000
Surr: DNOP	109	0	70-130		%Rec	1	8/18/2021 12:43:11 PM	62000
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:47:00 PM	62062
Barium	290	10	21		mg/Kg	200	8/26/2021 7:42:27 PM	62062
Cadmium	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:47:00 PM	62062
Chromium	15	1.0	2.1		mg/Kg	20	8/27/2021 6:23:31 PM	62062
Lead	13	1.0	2.1		mg/Kg	20	8/30/2021 1:20:09 PM	62062
Selenium	1.4	1.2	2.1	J	mg/Kg	20	8/26/2021 7:47:00 PM	62062
Silver	ND	1.0	2.1		mg/Kg	20	8/26/2021 7:47:00 PM	62062
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0069	0.0025	0.031	J	mg/Kg	1	8/25/2021 12:13:59 PM	62143
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Acenaphthylene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Aniline	ND	1.3	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Anthracene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Azobenzene	ND	1.9	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benz(a)anthracene	ND	1.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(a)pyrene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(b)fluoranthene	ND	2.1	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(g,h,i)perylene	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzo(k)fluoranthene	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzoic acid	ND	2.4	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Benzyl alcohol	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-chloroethoxy)methane	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-chloroethyl)ether	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-chloroisopropyl)ether	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Bis(2-ethylhexyl)phthalate	ND	4.2	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Bromophenyl phenyl ether	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Butyl benzyl phthalate	ND	1.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Carbazole	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Chloro-3-methylphenol	ND	1.6	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Chloroaniline	ND	1.9	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Chloronaphthalene	ND	1.8	4.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Chlorophenol	ND	2.1	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Chlorophenyl phenyl ether	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Di-n-butyl phthalate	ND	5.4	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Di-n-octyl phthalate	ND	2.5	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Dibenz(a,h)anthracene	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Dibenzofuran	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,2-Dichlorobenzene	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,3-Dichlorobenzene	ND	1.4	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,4-Dichlorobenzene	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
3,3´-Dichlorobenzidine	ND	2.9	4.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Diethyl phthalate	ND	6.3	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Dimethyl phthalate	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dichlorophenol	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dimethylphenol	ND	1.4	5.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4,6-Dinitro-2-methylphenol	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dinitrophenol	ND	0.97	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4-Dinitrotoluene	ND	2.3	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,6-Dinitrotoluene	ND	2.0	9.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Fluoranthene	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Fluorene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachlorobenzene	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachlorobutadiene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachlorocyclopentadiene	ND	2.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Hexachloroethane	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Indeno(1,2,3-cd)pyrene	ND	2.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Isophorone	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1-Methylnaphthalene	4.7	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Methylnaphthalene	6.6	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Methylphenol	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
3+4-Methylphenol	ND	1.6	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
N-Nitrosodi-n-propylamine	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
N-Nitrosodimethylamine	ND	2.9	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
N-Nitrosodiphenylamine	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Naphthalene	2.1	1.8	3.9	JD	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Nitroaniline	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
3-Nitroaniline	ND	2.3	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Nitroaniline	ND	2.5	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Nitrobenzene	ND	1.6	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2-Nitrophenol	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
4-Nitrophenol	ND	1.6	4.8	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	1.7	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Phenanthrene	ND	2.0	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Phenol	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Pyrene	ND	1.5	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Pyridine	ND	3.1	7.7	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
1,2,4-Trichlorobenzene	ND	1.8	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4,5-Trichlorophenol	ND	1.2	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
2,4,6-Trichlorophenol	ND	1.7	3.9	D	mg/Kg	20	8/25/2021 8:10:47 PM	62017
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	20	8/25/2021 8:10:47 PM	62017
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.17	0.0056	0.015		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Toluene	0.27	0.0038	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Ethylbenzene	1.0	0.0071	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Methyl tert-butyl ether (MTBE)	1.4	0.017	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,4-Trimethylbenzene	5.9	0.041	0.29		mg/Kg	10	8/19/2021 6:29:34 PM	R80682
1,3,5-Trimethylbenzene	0.38	0.0066	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0067	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.012	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Naphthalene	2.4	0.011	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1-Methylnaphthalene	6.8	0.34	1.2		mg/Kg	10	8/19/2021 6:29:34 PM	R80682
2-Methylnaphthalene	9.1	0.27	1.2		mg/Kg	10	8/19/2021 6:29:34 PM	R80682
Acetone	ND	0.096	0.44		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromobenzene	ND	0.0062	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromoform	ND	0.0071	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Bromomethane	ND	0.049	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2-Butanone	ND	0.13	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Carbon tetrachloride	ND	0.0033	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chlorobenzene	ND	0.0053	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chloroethane	ND	0.011	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chloroform	ND	0.0042	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Chloromethane	ND	0.010	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2-Chlorotoluene	ND	0.0039	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS4 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:35:00 AM
Lab ID: 2108721-040 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
cis-1,2-DCE	ND	0.015	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
cis-1,3-Dichloropropene	ND	0.0044	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.013	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Dibromochloromethane	ND	0.0047	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Dibromomethane	ND	0.0068	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dichlorobenzene	ND	0.0061	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,3-Dichlorobenzene	ND	0.0055	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,4-Dichlorobenzene	ND	0.0078	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1-Dichloroethane	ND	0.0085	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1-Dichloroethene	ND	0.0063	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2-Dichloropropane	ND	0.0057	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,3-Dichloropropane	ND	0.0064	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2,2-Dichloropropane	ND	0.0042	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1-Dichloropropene	ND	0.0035	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Hexachlorobutadiene	ND	0.020	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Isopropylbenzene	0.30	0.0054	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
4-Isopropyltoluene	0.18	0.0075	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
4-Methyl-2-pentanone	ND	0.034	0.29		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Methylene chloride	ND	0.021	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
n-Butylbenzene	1.5	0.0078	0.088		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
n-Propylbenzene	1.3	0.0047	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
sec-Butylbenzene	0.56	0.024	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Styrene	ND	0.0040	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
tert-Butylbenzene	ND	0.0068	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0043	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.0095	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Tetrachloroethene (PCE)	ND	0.0080	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
trans-1,2-DCE	ND	0.0057	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
trans-1,3-Dichloropropene	ND	0.0069	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0045	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,1-Trichloroethane	ND	0.0065	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,1,2-Trichloroethane	ND	0.0073	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Trichloroethene (TCE)	ND	0.0057	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Trichlorofluoromethane	ND	0.0067	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
1,2,3-Trichloropropane	ND	0.012	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS4 (1')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:35:00 AM
Lab ID: 2108721-040
Matrix: MEOH (SOIL)
Received Date: 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0056	0.029		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Xylenes, Total	1.9	0.015	0.059		mg/Kg	1	8/19/2021 4:50:08 AM	A80646
Surr: Dibromofluoromethane	97.7		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
Surr: Toluene-d8	101		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
Surr: 4-Bromofluorobenzene	93.0		70-130		%Rec	1	8/19/2021 4:50:08 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	73	0.81	2.9		mg/Kg	1	8/19/2021 4:50:08 AM	B80646
Surr: BFB	102	0	70-130		%Rec	1	8/19/2021 4:50:08 AM	B80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	1300	49	99		mg/Kg	10	8/19/2021 4:33:59 AM	62016
Motor Oil Range Organics (MRO)	ND	500	500	D	mg/Kg	10	8/19/2021 4:33:59 AM	62016
Surr: DNOP	0	0	70-130	S	%Rec	10	8/19/2021 4:33:59 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.4	0.97	1.9	J	mg/Kg	20	8/26/2021 7:56:06 PM	62063
Barium	200	9.7	19		mg/Kg	200	8/26/2021 7:51:33 PM	62063
Cadmium	ND	9.7	19		mg/Kg	200	8/26/2021 7:51:33 PM	62063
Chromium	11	0.97	1.9		mg/Kg	20	8/27/2021 6:28:04 PM	62063
Lead	10	0.97	1.9		mg/Kg	20	8/30/2021 1:23:38 PM	62063
Selenium	1.3	1.1	1.9	J	mg/Kg	20	8/26/2021 7:56:06 PM	62063
Silver	ND	9.7	19		mg/Kg	200	8/26/2021 7:51:33 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.013	0.0026	0.032	J	mg/Kg	1	8/25/2021 12:16:10 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	8.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Acenaphthylene	ND	8.9	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Aniline	ND	6.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Anthracene	ND	8.9	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Azobenzene	ND	9.9	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benz(a)anthracene	ND	6.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(a)pyrene	ND	9.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(b)fluoranthene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(g,h,i)perylene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzo(k)fluoranthene	ND	7.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzoic acid	ND	12	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Benzyl alcohol	ND	8.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-chloroethoxy)methane	ND	7.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-chloroethyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-chloroisopropyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Bis(2-ethylhexyl)phthalate	ND	21	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Bromophenyl phenyl ether	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Butyl benzyl phthalate	ND	6.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Carbazole	ND	8.7	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Chloro-3-methylphenol	ND	8.3	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Chloroaniline	ND	9.6	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Chloronaphthalene	ND	9.4	25	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Chlorophenol	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Chlorophenyl phenyl ether	ND	8.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052

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Qualifiers:

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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	8.7	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Di-n-butyl phthalate	ND	28	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Di-n-octyl phthalate	ND	13	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Dibenz(a,h)anthracene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Dibenzofuran	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,2-Dichlorobenzene	ND	8.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,3-Dichlorobenzene	ND	7.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,4-Dichlorobenzene	ND	8.4	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
3,3´-Dichlorobenzidine	ND	15	25	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Diethyl phthalate	ND	32	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Dimethyl phthalate	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dichlorophenol	ND	8.0	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dimethylphenol	ND	7.0	30	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4,6-Dinitro-2-methylphenol	ND	8.3	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dinitrophenol	ND	5.0	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4-Dinitrotoluene	ND	12	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,6-Dinitrotoluene	ND	10	49	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Fluoranthene	ND	8.0	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Fluorene	ND	8.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachlorobenzene	ND	8.8	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachlorobutadiene	ND	9.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachlorocyclopentadiene	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Hexachloroethane	ND	8.7	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Indeno(1,2,3-cd)pyrene	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Isophorone	ND	8.1	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1-Methylnaphthalene	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Methylnaphthalene	ND	8.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Methylphenol	ND	8.3	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
3+4-Methylphenol	ND	8.2	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
N-Nitrosodi-n-propylamine	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
N-Nitrosodimethylamine	ND	15	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
N-Nitrosodiphenylamine	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Naphthalene	ND	9.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Nitroaniline	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
3-Nitroaniline	ND	11	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Nitroaniline	ND	13	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Nitrobenzene	ND	8.1	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2-Nitrophenol	ND	8.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
4-Nitrophenol	ND	8.1	25	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	8.5	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Phenanthrene	ND	10	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Phenol	ND	7.6	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Pyrene	ND	7.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Pyridine	ND	16	39	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
1,2,4-Trichlorobenzene	ND	9.1	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4,5-Trichlorophenol	ND	6.3	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
2,4,6-Trichlorophenol	ND	8.5	20	D	mg/Kg	100	8/25/2021 8:52:32 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/25/2021 8:52:32 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.066	0.0093	0.024		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Toluene	0.21	0.0062	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Ethylbenzene	0.33	0.012	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Methyl tert-butyl ether (MTBE)	0.38	0.027	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,4-Trimethylbenzene	1.3	0.0068	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,3,5-Trimethylbenzene	0.30	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.019	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Naphthalene	0.25	0.018	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1-Methylnaphthalene	1.6	0.056	0.19		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Methylnaphthalene	0.65	0.045	0.19		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Acetone	ND	0.16	0.73		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromobenzene	ND	0.010	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromodichloromethane	ND	0.0062	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromoform	ND	0.012	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Bromomethane	ND	0.080	0.15		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Butanone	ND	0.21	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Carbon disulfide	ND	0.020	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Carbon tetrachloride	ND	0.0054	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chlorobenzene	ND	0.0087	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chloroethane	ND	0.018	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chloroform	ND	0.0069	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Chloromethane	ND	0.017	0.15		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Chlorotoluene	ND	0.0065	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.025	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
cis-1,2-DCE	ND	0.024	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
cis-1,3-Dichloropropene	ND	0.0072	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.021	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Dibromochloromethane	ND	0.0077	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Dibromomethane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dichlorobenzene	ND	0.010	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,3-Dichlorobenzene	ND	0.0091	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,4-Dichlorobenzene	ND	0.013	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Dichlorodifluoromethane	ND	0.019	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1-Dichloroethane	ND	0.014	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1-Dichloroethene	ND	0.010	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2-Dichloropropane	ND	0.0094	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,3-Dichloropropane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2,2-Dichloropropane	ND	0.0069	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1-Dichloropropene	ND	0.0058	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Hexachlorobutadiene	ND	0.033	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
2-Hexanone	ND	0.021	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Isopropylbenzene	0.043	0.0090	0.048	J	mg/Kg	2	8/19/2021 5:47:17 AM	A80646
4-Isopropyltoluene	0.039	0.012	0.048	J	mg/Kg	2	8/19/2021 5:47:17 AM	A80646
4-Methyl-2-pentanone	ND	0.056	0.48		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Methylene chloride	ND	0.035	0.15		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
n-Butylbenzene	0.14	0.013	0.15	J	mg/Kg	2	8/19/2021 5:47:17 AM	A80646
n-Propylbenzene	0.18	0.0078	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
sec-Butylbenzene	0.049	0.040	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Styrene	ND	0.0066	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
tert-Butylbenzene	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0071	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.016	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Tetrachloroethene (PCE)	ND	0.013	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
trans-1,2-DCE	ND	0.0094	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
trans-1,3-Dichloropropene	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0075	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,4-Trichlorobenzene	ND	0.017	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,1-Trichloroethane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,1,2-Trichloroethane	ND	0.012	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Trichloroethene (TCE)	ND	0.0095	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Trichlorofluoromethane	ND	0.011	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
1,2,3-Trichloropropane	ND	0.020	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:40:00 AM
Lab ID: 2108721-041 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0092	0.048		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Xylenes, Total	1.3	0.025	0.097		mg/Kg	2	8/19/2021 5:47:17 AM	A80646
Surr: Dibromofluoromethane	101		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
Surr: Toluene-d8	102		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
Surr: 4-Bromofluorobenzene	96.1		70-130		%Rec	2	8/19/2021 5:47:17 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	24	1.3	4.8		mg/Kg	2	8/19/2021 5:47:17 AM	B80646
Surr: BFB	98.7	0	70-130		%Rec	2	8/19/2021 5:47:17 AM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	2200	24	49		mg/Kg	5	8/20/2021 5:17:01 PM	62016
Motor Oil Range Organics (MRO)	390	250	250		mg/Kg	5	8/20/2021 5:17:01 PM	62016
Surr: DNOP	131	0	70-130	S	%Rec	5	8/20/2021 5:17:01 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.3	1.0	2.0	J	mg/Kg	20	8/26/2021 8:05:12 PM	62063
Barium	540	10	20		mg/Kg	200	8/26/2021 8:00:39 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:05:12 PM	62063
Chromium	14	1.0	2.0		mg/Kg	20	8/27/2021 6:32:37 PM	62063
Lead	24	1.0	2.0		mg/Kg	20	8/30/2021 1:27:06 PM	62063
Selenium	ND	1.2	2.0		mg/Kg	20	8/26/2021 8:05:12 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:05:12 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.017	0.0027	0.034	J	mg/Kg	1	8/25/2021 12:18:19 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	8.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Acenaphthylene	ND	9.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Aniline	ND	6.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Anthracene	ND	9.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Azobenzene	ND	9.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benz(a)anthracene	ND	6.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(a)pyrene	ND	9.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(b)fluoranthene	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(g,h,i)perylene	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzo(k)fluoranthene	ND	7.5	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzoic acid	ND	12	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Benzyl alcohol	ND	8.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-chloroethoxy)methane	ND	7.6	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-chloroethyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-chloroisopropyl)ether	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Bis(2-ethylhexyl)phthalate	ND	21	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Bromophenyl phenyl ether	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Butyl benzyl phthalate	ND	6.1	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Carbazole	ND	8.7	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Chloro-3-methylphenol	ND	8.4	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Chloroaniline	ND	9.7	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Chloronaphthalene	ND	9.4	25	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Chlorophenol	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Chlorophenyl phenyl ether	ND	8.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	8.8	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Di-n-butyl phthalate	ND	28	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Di-n-octyl phthalate	ND	13	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Dibenz(a,h)anthracene	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Dibenzofuran	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,2-Dichlorobenzene	ND	8.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,3-Dichlorobenzene	ND	7.1	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,4-Dichlorobenzene	ND	8.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
3,3´-Dichlorobenzidine	ND	15	25	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Diethyl phthalate	ND	32	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Dimethyl phthalate	ND	9.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dichlorophenol	ND	8.1	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dimethylphenol	ND	7.1	30	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4,6-Dinitro-2-methylphenol	ND	8.4	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dinitrophenol	ND	5.0	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4-Dinitrotoluene	ND	12	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,6-Dinitrotoluene	ND	10	50	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Fluoranthene	ND	8.0	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Fluorene	ND	8.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachlorobenzene	ND	8.9	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachlorobutadiene	ND	9.3	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachlorocyclopentadiene	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Hexachloroethane	ND	8.8	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Indeno(1,2,3-cd)pyrene	ND	11	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Isophorone	ND	8.1	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1-Methylnaphthalene	ND	9.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Methylnaphthalene	ND	8.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Methylphenol	ND	8.4	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
3+4-Methylphenol	ND	8.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
N-Nitrosodi-n-propylamine	ND	9.2	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
N-Nitrosodimethylamine	ND	15	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
N-Nitrosodiphenylamine	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Naphthalene	ND	9.4	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Nitroaniline	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
3-Nitroaniline	ND	12	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Nitroaniline	ND	13	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Nitrobenzene	ND	8.2	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2-Nitrophenol	ND	8.6	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
4-Nitrophenol	ND	8.2	25	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	8.6	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Phenanthrene	ND	10	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Phenol	ND	7.7	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Pyrene	ND	7.5	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Pyridine	ND	16	40	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
1,2,4-Trichlorobenzene	ND	9.1	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4,5-Trichlorophenol	ND	6.3	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
2,4,6-Trichlorophenol	ND	8.6	20	D	mg/Kg	100	8/25/2021 10:25:11 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/25/2021 10:25:11 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.029	0.0098	0.025		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Toluene	0.089	0.0065	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Ethylbenzene	0.12	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Methyl tert-butyl ether (MTBE)	0.47	0.029	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,4-Trimethylbenzene	0.54	0.0072	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,3,5-Trimethylbenzene	0.23	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.020	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Naphthalene	ND	0.019	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1-Methylnaphthalene	1.3	0.058	0.20		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Methylnaphthalene	0.33	0.047	0.20		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Acetone	ND	0.17	0.76		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromobenzene	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromodichloromethane	ND	0.0065	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromoform	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Bromomethane	ND	0.084	0.15		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Butanone	ND	0.22	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Carbon disulfide	ND	0.021	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Carbon tetrachloride	ND	0.0057	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chlorobenzene	ND	0.0091	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chloroethane	ND	0.019	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chloroform	ND	0.0072	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Chloromethane	ND	0.018	0.15		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Chlorotoluene	ND	0.0068	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.027	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
cis-1,2-DCE	ND	0.025	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
cis-1,3-Dichloropropene	ND	0.0075	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Dibromochloromethane	ND	0.0081	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Dibromomethane	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dichlorobenzene	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,3-Dichlorobenzene	ND	0.0096	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,4-Dichlorobenzene	ND	0.014	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Dichlorodifluoromethane	ND	0.020	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1-Dichloroethane	ND	0.015	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1-Dichloroethene	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2-Dichloropropane	ND	0.0099	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,3-Dichloropropane	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2,2-Dichloropropane	ND	0.0072	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1-Dichloropropene	ND	0.0061	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Hexachlorobutadiene	ND	0.035	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
2-Hexanone	ND	0.022	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Isopropylbenzene	0.014	0.0094	0.051	J	mg/Kg	2	8/19/2021 6:44:29 AM	A80646
4-Isopropyltoluene	0.035	0.013	0.051	J	mg/Kg	2	8/19/2021 6:44:29 AM	A80646
4-Methyl-2-pentanone	ND	0.059	0.51		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Methylene chloride	ND	0.037	0.15		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
n-Butylbenzene	0.077	0.014	0.15	J	mg/Kg	2	8/19/2021 6:44:29 AM	A80646
n-Propylbenzene	0.069	0.0082	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
sec-Butylbenzene	ND	0.042	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Styrene	ND	0.0069	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
tert-Butylbenzene	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0075	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.016	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Tetrachloroethene (PCE)	ND	0.014	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
trans-1,2-DCE	ND	0.0098	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
trans-1,3-Dichloropropene	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0079	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,4-Trichlorobenzene	ND	0.018	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,1-Trichloroethane	ND	0.011	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,1,2-Trichloroethane	ND	0.013	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Trichloroethene (TCE)	ND	0.0099	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Trichlorofluoromethane	ND	0.012	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS5 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:45:00 AM
Lab ID: 2108721-042 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0097	0.051		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Xylenes, Total	0.56	0.027	0.10		mg/Kg	2	8/19/2021 6:44:29 AM	A80646
Surr: Dibromofluoromethane	103		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
Surr: 1,2-Dichloroethane-d4	105		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
Surr: Toluene-d8	103		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
Surr: 4-Bromofluorobenzene	96.6		70-130		%Rec	2	8/19/2021 6:44:29 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	14	1.4	5.1		mg/Kg	2	8/19/2021 6:44:29 AM	B80646
Surr: BFB	101	0	70-130		%Rec	2	8/19/2021 6:44:29 AM	B80646

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS6 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	130	4.9	9.9		mg/Kg	1	8/18/2021 3:47:08 PM	62016
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	8/18/2021 3:47:08 PM	62016
Surr: DNOP	101	0	70-130		%Rec	1	8/18/2021 3:47:08 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:14:18 PM	62063
Barium	270	10	20		mg/Kg	200	8/26/2021 8:09:45 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:14:18 PM	62063
Chromium	17	1.0	2.0		mg/Kg	20	8/27/2021 6:37:10 PM	62063
Lead	11	1.0	2.0		mg/Kg	20	8/30/2021 1:30:35 PM	62063
Selenium	1.5	1.2	2.0	J	mg/Kg	20	8/26/2021 8:14:18 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/26/2021 8:14:18 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.010	0.0025	0.032	J	mg/Kg	1	8/25/2021 12:20:29 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Diethyl phthalate	ND	3.2	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/25/2021 11:06:37 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/25/2021 11:06:37 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0065	0.017		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Toluene	ND	0.0044	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Ethylbenzene	ND	0.0083	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Methyl tert-butyl ether (MTBE)	0.072	0.019	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,4-Trimethylbenzene	0.011	0.0048	0.034	J	mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0076	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0077	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.013	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Naphthalene	ND	0.013	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1-Methylnaphthalene	ND	0.039	0.14		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Methylnaphthalene	ND	0.031	0.14		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Acetone	ND	0.11	0.51		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromobenzene	ND	0.0072	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromodichloromethane	ND	0.0043	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromoform	ND	0.0082	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Bromomethane	ND	0.056	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Butanone	ND	0.15	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Carbon disulfide	ND	0.014	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Carbon tetrachloride	ND	0.0038	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chlorobenzene	ND	0.0061	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chloroethane	ND	0.013	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chloroform	ND	0.0048	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Chlorotoluene	ND	0.0045	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS6 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
cis-1,2-DCE	ND	0.017	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
cis-1,3-Dichloropropene	ND	0.0050	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.015	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Dibromochloromethane	ND	0.0054	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Dibromomethane	ND	0.0079	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dichlorobenzene	ND	0.0070	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,3-Dichlorobenzene	ND	0.0064	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,4-Dichlorobenzene	ND	0.0091	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Dichlorodifluoromethane	ND	0.013	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1-Dichloroethane	ND	0.0099	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1-Dichloroethene	ND	0.0073	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2-Dichloropropane	ND	0.0066	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,3-Dichloropropane	ND	0.0074	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2,2-Dichloropropane	ND	0.0048	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1-Dichloropropene	ND	0.0041	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Hexachlorobutadiene	ND	0.023	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
2-Hexanone	ND	0.015	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Isopropylbenzene	ND	0.0063	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
4-Isopropyltoluene	ND	0.0087	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
4-Methyl-2-pentanone	ND	0.039	0.34		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Methylene chloride	ND	0.025	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
n-Butylbenzene	ND	0.0091	0.10		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
n-Propylbenzene	ND	0.0055	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
sec-Butylbenzene	ND	0.028	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Styrene	ND	0.0046	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
tert-Butylbenzene	ND	0.0078	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0050	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Tetrachloroethene (PCE)	ND	0.0093	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
trans-1,2-DCE	ND	0.0065	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
trans-1,3-Dichloropropene	ND	0.0079	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0052	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,1-Trichloroethane	ND	0.0075	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,1,2-Trichloroethane	ND	0.0085	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Trichloroethene (TCE)	ND	0.0066	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Trichlorofluoromethane	ND	0.0077	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
1,2,3-Trichloropropane	ND	0.014	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:50:00 AM
Lab ID: 2108721-043 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0065	0.034		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Xylenes, Total	ND	0.018	0.068		mg/Kg	1	8/19/2021 7:41:40 AM	A80646
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.2		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
Surr: Toluene-d8	101		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
Surr: 4-Bromofluorobenzene	92.2		70-130		%Rec	1	8/19/2021 7:41:40 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	1.1	0.94	3.4	J	mg/Kg	1	8/19/2021 7:41:40 AM	B80646
Surr: BFB	93.9	0	70-130		%Rec	1	8/19/2021 7:41:40 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	51	4.9	9.8		mg/Kg	1	8/18/2021 3:58:55 PM	62016
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	8/18/2021 3:58:55 PM	62016
Surr: DNOP	100	0	70-130		%Rec	1	8/18/2021 3:58:55 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	1.0	2.0	J	mg/Kg	20	8/27/2021 6:59:57 PM	62063
Barium	270	10	20		mg/Kg	200	8/26/2021 8:28:00 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
Chromium	19	1.0	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
Lead	11	1.0	2.0		mg/Kg	20	9/8/2021 10:49:37 AM	62063
Selenium	2.1	1.2	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/27/2021 6:59:57 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0089	0.0026	0.032	J	mg/Kg	1	8/25/2021 12:22:38 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzoic acid	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Chloroaniline	ND	0.96	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Diethyl phthalate	ND	3.2	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Methylphenol	ND	0.83	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/25/2021 11:47:57 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/25/2021 11:47:57 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0070	0.018		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Toluene	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Ethylbenzene	ND	0.0089	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Methyl tert-butyl ether (MTBE)	0.076	0.021	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,4-Trimethylbenzene	ND	0.0052	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0082	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0083	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.014	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Naphthalene	ND	0.014	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1-Methylnaphthalene	0.24	0.042	0.15		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Methylnaphthalene	ND	0.034	0.15		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Acetone	ND	0.12	0.55		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromobenzene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromodichloromethane	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromoform	ND	0.0088	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Bromomethane	ND	0.061	0.11		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Carbon tetrachloride	ND	0.0041	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chlorobenzene	ND	0.0066	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chloroethane	ND	0.014	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chloroform	ND	0.0052	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Chlorotoluene	ND	0.0049	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.019	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
cis-1,2-DCE	ND	0.018	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
cis-1,3-Dichloropropene	ND	0.0054	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.016	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Dibromochloromethane	ND	0.0059	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Dibromomethane	ND	0.0085	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dichlorobenzene	ND	0.0076	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,3-Dichlorobenzene	ND	0.0069	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,4-Dichlorobenzene	ND	0.0098	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1-Dichloroethene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2-Dichloropropane	ND	0.0071	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,3-Dichloropropane	ND	0.0080	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2,2-Dichloropropane	ND	0.0052	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1-Dichloropropene	ND	0.0044	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Hexachlorobutadiene	ND	0.025	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Isopropylbenzene	ND	0.0068	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
4-Isopropyltoluene	0.055	0.0094	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
4-Methyl-2-pentanone	ND	0.043	0.37		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Methylene chloride	ND	0.026	0.11		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
n-Butylbenzene	0.037	0.0098	0.11	J	mg/Kg	1	8/19/2021 8:10:14 AM	A80646
n-Propylbenzene	0.0078	0.0059	0.037	J	mg/Kg	1	8/19/2021 8:10:14 AM	A80646
sec-Butylbenzene	0.044	0.030	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Styrene	ND	0.0050	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
tert-Butylbenzene	ND	0.0085	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0054	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
trans-1,2-DCE	ND	0.0071	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
trans-1,3-Dichloropropene	ND	0.0086	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0057	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,1-Trichloroethane	ND	0.0081	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,1,2-Trichloroethane	ND	0.0092	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Trichloroethene (TCE)	ND	0.0072	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Trichlorofluoromethane	ND	0.0083	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
1,2,3-Trichloropropane	ND	0.015	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646

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Qualifiers:

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS6 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 8:55:00 AM
Lab ID: 2108721-044 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0070	0.037		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Xylenes, Total	ND	0.019	0.073		mg/Kg	1	8/19/2021 8:10:14 AM	A80646
Surr: Dibromofluoromethane	103		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
Surr: Toluene-d8	107		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
Surr: 4-Bromofluorobenzene	89.7		70-130		%Rec	1	8/19/2021 8:10:14 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	11	1.0	3.7		mg/Kg	1	8/19/2021 8:10:14 AM	B80646
Surr: BFB	91.0	0	70-130		%Rec	1	8/19/2021 8:10:14 AM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	65	4.8	9.7		mg/Kg	1	8/20/2021 8:15:21 AM	62016
Motor Oil Range Organics (MRO)	130	49	49		mg/Kg	1	8/20/2021 8:15:21 AM	62016
Surr: DNOP	104	0	70-130		%Rec	1	8/20/2021 8:15:21 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.4	0.97	1.9	J	mg/Kg	20	8/27/2021 7:09:03 PM	62063
Barium	390	9.7	19		mg/Kg	200	8/26/2021 8:37:06 PM	62063
Cadmium	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
Chromium	31	0.97	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
Lead	30	0.97	1.9		mg/Kg	20	9/8/2021 10:54:03 AM	62063
Selenium	2.0	1.1	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
Silver	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:09:03 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.10	0.014	0.17	J	mg/Kg	5	8/25/2021 1:17:06 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Chloronaphthalene	ND	0.93	2.5	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Nitrobenzene	ND	0.81	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052

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Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 2:24:06 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 2:24:06 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0071	0.018		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Toluene	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Ethylbenzene	ND	0.0090	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.021	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,4-Trimethylbenzene	0.013	0.0052	0.037	J	mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0083	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0084	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.015	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Naphthalene	ND	0.014	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1-Methylnaphthalene	ND	0.042	0.15		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Methylnaphthalene	ND	0.034	0.15		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Acetone	ND	0.12	0.55		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromobenzene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromodichloromethane	ND	0.0047	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromoform	ND	0.0089	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Bromomethane	ND	0.061	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Carbon tetrachloride	ND	0.0041	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chlorobenzene	ND	0.0066	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chloroethane	ND	0.014	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chloroform	ND	0.0052	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Chlorotoluene	ND	0.0049	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646

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Qualifiers:

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H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-SS7 (0.5')
Project: Railcar Release Investigation
Collection Date: 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.019	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
cis-1,2-DCE	ND	0.018	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
cis-1,3-Dichloropropene	ND	0.0055	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.016	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Dibromochloromethane	ND	0.0059	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Dibromomethane	ND	0.0086	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dichlorobenzene	ND	0.0077	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,3-Dichlorobenzene	ND	0.0070	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,4-Dichlorobenzene	ND	0.0099	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1-Dichloroethene	ND	0.0079	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2-Dichloropropane	ND	0.0072	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,3-Dichloropropane	ND	0.0081	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2,2-Dichloropropane	ND	0.0052	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1-Dichloropropene	ND	0.0045	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Hexachlorobutadiene	ND	0.025	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Isopropylbenzene	ND	0.0068	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
4-Isopropyltoluene	ND	0.0095	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
4-Methyl-2-pentanone	ND	0.043	0.37		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
n-Butylbenzene	ND	0.0099	0.11		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
n-Propylbenzene	ND	0.0060	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
sec-Butylbenzene	ND	0.030	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Styrene	ND	0.0050	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
tert-Butylbenzene	ND	0.0085	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0054	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
trans-1,2-DCE	ND	0.0071	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
trans-1,3-Dichloropropene	ND	0.0086	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0057	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,1-Trichloroethane	ND	0.0081	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,1,2-Trichloroethane	ND	0.0092	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Trichloroethene (TCE)	ND	0.0072	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Trichlorofluoromethane	ND	0.0084	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
1,2,3-Trichloropropane	ND	0.016	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646

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Qualifiers:

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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:10:00 AM
Lab ID: 2108721-045 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0070	0.037		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Xylenes, Total	ND	0.019	0.074		mg/Kg	1	8/19/2021 8:38:53 AM	A80646
Surr: Dibromofluoromethane	107		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.9		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
Surr: Toluene-d8	106		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
Surr: 4-Bromofluorobenzene	91.0		70-130		%Rec	1	8/19/2021 8:38:53 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.0	3.7		mg/Kg	1	8/19/2021 3:08:35 PM	R80682
Surr: BFB	95.9	0	70-130		%Rec	1	8/19/2021 3:08:35 PM	R80682

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Qualifiers:

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PQL	Practical Quanitative Limit
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B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	10		mg/Kg	1	8/20/2021 4:27:01 PM	62016
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	8/20/2021 4:27:01 PM	62016
Surr: DNOP	101	0	70-130		%Rec	1	8/20/2021 4:27:01 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.3	1.0	2.0	J	mg/Kg	20	8/27/2021 7:18:09 PM	62063
Barium	370	10	20		mg/Kg	200	8/26/2021 8:46:13 PM	62063
Cadmium	ND	1.0	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
Chromium	26	1.0	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
Lead	15	1.0	2.0		mg/Kg	20	9/8/2021 10:58:30 AM	62063
Selenium	2.2	1.2	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
Silver	ND	1.0	2.0		mg/Kg	20	8/27/2021 7:18:09 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.14	0.0026	0.032		mg/Kg	1	8/25/2021 12:35:54 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(a)pyrene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Chloroaniline	ND	0.96	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dichlorophenol	ND	0.80	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dimethylphenol	ND	0.70	3.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.83	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dinitrophenol	ND	0.50	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Fluorene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Methylphenol	ND	0.83	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
4-Nitrophenol	ND	0.81	2.5	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
2,4,6-Trichlorophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 3:05:45 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 3:05:45 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0055	0.014		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Toluene	0.0069	0.0037	0.029	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Ethylbenzene	0.026	0.0070	0.029	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.016	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,4-Trimethylbenzene	0.16	0.0041	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,3,5-Trimethylbenzene	0.051	0.0065	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0066	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.011	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Naphthalene	0.022	0.011	0.058	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1-Methylnaphthalene	ND	0.033	0.12		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Methylnaphthalene	0.044	0.027	0.12	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Acetone	ND	0.094	0.43		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromobenzene	ND	0.0061	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromodichloromethane	ND	0.0037	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromoform	ND	0.0069	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Bromomethane	ND	0.048	0.086		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Butanone	ND	0.12	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Carbon disulfide	ND	0.012	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Carbon tetrachloride	ND	0.0032	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chlorobenzene	ND	0.0052	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chloroethane	ND	0.011	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chloroform	ND	0.0041	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Chloromethane	ND	0.010	0.086		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Chlorotoluene	ND	0.0039	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.015	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
cis-1,2-DCE	ND	0.014	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
cis-1,3-Dichloropropene	ND	0.0043	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.012	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Dibromochloromethane	ND	0.0046	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Dibromomethane	ND	0.0067	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dichlorobenzene	ND	0.0060	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,3-Dichlorobenzene	ND	0.0054	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,4-Dichlorobenzene	ND	0.0077	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Dichlorodifluoromethane	ND	0.011	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1-Dichloroethane	ND	0.0084	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1-Dichloroethene	ND	0.0062	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2-Dichloropropane	ND	0.0056	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,3-Dichloropropane	ND	0.0063	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2,2-Dichloropropane	ND	0.0041	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1-Dichloropropene	ND	0.0035	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Hexachlorobutadiene	ND	0.020	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
2-Hexanone	ND	0.013	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Isopropylbenzene	ND	0.0053	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
4-Isopropyltoluene	ND	0.0074	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
4-Methyl-2-pentanone	ND	0.034	0.29		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Methylene chloride	ND	0.021	0.086		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
n-Butylbenzene	0.011	0.0077	0.086	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
n-Propylbenzene	0.018	0.0046	0.029	J	mg/Kg	1	8/19/2021 9:07:36 AM	A80646
sec-Butylbenzene	ND	0.024	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Styrene	ND	0.0039	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
tert-Butylbenzene	ND	0.0067	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0042	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.0093	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Tetrachloroethene (PCE)	ND	0.0079	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
trans-1,2-DCE	ND	0.0056	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
trans-1,3-Dichloropropene	ND	0.0067	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0044	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,4-Trichlorobenzene	ND	0.010	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,1-Trichloroethane	ND	0.0063	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,1,2-Trichloroethane	ND	0.0072	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Trichloroethene (TCE)	ND	0.0056	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Trichlorofluoromethane	ND	0.0065	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
1,2,3-Trichloropropane	ND	0.012	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS7 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:15:00 AM
Lab ID: 2108721-046 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0055	0.029		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Xylenes, Total	0.13	0.015	0.058		mg/Kg	1	8/19/2021 9:07:36 AM	A80646
Surr: Dibromofluoromethane	99.2		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
Surr: 1,2-Dichloroethane-d4	98.9		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
Surr: Toluene-d8	105		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
Surr: 4-Bromofluorobenzene	92.3		70-130		%Rec	1	8/19/2021 9:07:36 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	3.8	0.80	2.9		mg/Kg	1	8/19/2021 9:07:36 AM	B80646
Surr: BFB	95.9	0	70-130		%Rec	1	8/19/2021 9:07:36 AM	B80646

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	140	4.8	9.8		mg/Kg	1	8/20/2021 4:52:01 PM	62016
Motor Oil Range Organics (MRO)	180	49	49		mg/Kg	1	8/20/2021 4:52:01 PM	62016
Surr: DNOP	103	0	70-130		%Rec	1	8/20/2021 4:52:01 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.2	0.97	1.9	J	mg/Kg	20	8/27/2021 7:27:15 PM	62063
Barium	370	9.7	19		mg/Kg	200	8/26/2021 8:55:20 PM	62063
Cadmium	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
Chromium	25	0.97	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
Lead	31	0.97	1.9		mg/Kg	20	9/8/2021 11:02:57 AM	62063
Selenium	2.1	1.1	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
Silver	ND	0.97	1.9		mg/Kg	20	8/27/2021 7:27:15 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.11	0.0025	0.031		mg/Kg	1	8/25/2021 12:38:04 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Acenaphthylene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Anthracene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzo(k)fluoranthene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Chloro-3-methylphenol	ND	0.83	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Chloronaphthalene	ND	0.93	2.4	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Dimethyl phthalate	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dichlorophenol	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dimethylphenol	ND	0.70	2.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.83	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,6-Dinitrotoluene	ND	1.0	4.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Fluorene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Hexachloroethane	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
N-Nitrosodi-n-propylamine	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2-Nitrophenol	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
4-Nitrophenol	ND	0.81	2.4	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.85	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Phenol	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 3:47:21 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 3:47:21 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0072	0.019		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Toluene	0.0058	0.0048	0.037	J	mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Ethylbenzene	ND	0.0091	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.021	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,4-Trimethylbenzene	0.013	0.0053	0.037	J	mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,3,5-Trimethylbenzene	ND	0.0084	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0085	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.015	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Naphthalene	ND	0.014	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1-Methylnaphthalene	ND	0.043	0.15		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Methylnaphthalene	ND	0.035	0.15		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Acetone	ND	0.12	0.56		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromobenzene	ND	0.0080	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromodichloromethane	ND	0.0048	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromoform	ND	0.0090	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Bromomethane	ND	0.062	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Butanone	ND	0.16	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Carbon disulfide	ND	0.015	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Carbon tetrachloride	ND	0.0042	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chlorobenzene	ND	0.0067	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chloroethane	ND	0.014	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chloroform	ND	0.0053	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Chloromethane	ND	0.013	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Chlorotoluene	ND	0.0050	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
cis-1,2-DCE	ND	0.019	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
cis-1,3-Dichloropropene	ND	0.0056	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.016	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Dibromochloromethane	ND	0.0060	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Dibromomethane	ND	0.0088	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dichlorobenzene	ND	0.0078	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,3-Dichlorobenzene	ND	0.0071	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,4-Dichlorobenzene	ND	0.010	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1-Dichloroethane	ND	0.011	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1-Dichloroethene	ND	0.0080	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2-Dichloropropane	ND	0.0073	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,3-Dichloropropane	ND	0.0082	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2,2-Dichloropropane	ND	0.0053	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1-Dichloropropene	ND	0.0045	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Hexachlorobutadiene	ND	0.025	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
2-Hexanone	ND	0.016	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Isopropylbenzene	ND	0.0070	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
4-Isopropyltoluene	ND	0.0097	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
4-Methyl-2-pentanone	ND	0.044	0.37		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Methylene chloride	ND	0.027	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
n-Butylbenzene	ND	0.010	0.11		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
n-Propylbenzene	ND	0.0061	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
sec-Butylbenzene	ND	0.031	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Styrene	ND	0.0051	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
tert-Butylbenzene	ND	0.0087	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0055	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.012	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Tetrachloroethene (PCE)	ND	0.010	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
trans-1,2-DCE	ND	0.0072	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
trans-1,3-Dichloropropene	ND	0.0088	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0058	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,4-Trichlorobenzene	ND	0.013	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,1-Trichloroethane	ND	0.0083	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,1,2-Trichloroethane	ND	0.0094	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Trichloroethene (TCE)	ND	0.0073	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Trichlorofluoromethane	ND	0.0085	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
1,2,3-Trichloropropane	ND	0.016	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:20:00 AM
Lab ID: 2108721-047 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0071	0.037		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Xylenes, Total	ND	0.020	0.075		mg/Kg	1	8/19/2021 9:36:11 AM	A80646
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.1		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
Surr: Toluene-d8	105		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
Surr: 4-Bromofluorobenzene	89.3		70-130		%Rec	1	8/19/2021 9:36:11 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.0	3.7		mg/Kg	1	8/19/2021 9:36:11 AM	B80646
Surr: BFB	93.3	0	70-130		%Rec	1	8/19/2021 9:36:11 AM	B80646

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Qualifiers:

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	82	4.8	9.7		mg/Kg	1	8/20/2021 8:39:38 AM	62016
Motor Oil Range Organics (MRO)	56	49	49		mg/Kg	1	8/20/2021 8:39:38 AM	62016
Surr: DNOP	102	0	70-130		%Rec	1	8/20/2021 8:39:38 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.97	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Barium	360	9.7	19		mg/Kg	200	8/30/2021 1:34:04 PM	62063
Cadmium	ND	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Chromium	18	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Lead	24	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Selenium	2.2	0.56	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
Silver	ND	0.48	0.97		mg/Kg	10	8/27/2021 2:56:44 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.021	0.0025	0.031	J	mg/Kg	1	8/25/2021 12:40:14 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Acenaphthylene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Anthracene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzoic acid	ND	1.3	10	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.2	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052

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Qualifiers:

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ND	Not Detected at the Reporting Limit
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B	Analyte detected in the associated Method Blank
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Dimethyl phthalate	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Methylnaphthalene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
3+4-Methylphenol	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
N-Nitrosodi-n-propylamine	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 4:29:10 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 4:29:10 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.0095	0.025		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Toluene	ND	0.0063	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Ethylbenzene	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Methyl tert-butyl ether (MTBE)	ND	0.028	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,4-Trimethylbenzene	0.0071	0.0069	0.049	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,3,5-Trimethylbenzene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dichloroethane (EDC)	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dibromoethane (EDB)	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Naphthalene	ND	0.018	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1-Methylnaphthalene	ND	0.056	0.20		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Methylnaphthalene	ND	0.045	0.20		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Acetone	ND	0.16	0.74		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromodichloromethane	ND	0.0063	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromoform	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Bromomethane	ND	0.082	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Butanone	ND	0.21	0.49		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Carbon disulfide	ND	0.020	0.49		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Carbon tetrachloride	ND	0.0055	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chlorobenzene	ND	0.0089	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chloroethane	ND	0.018	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chloroform	ND	0.0070	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Chloromethane	ND	0.017	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Chlorotoluene	ND	0.0066	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.026	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
cis-1,2-DCE	ND	0.024	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
cis-1,3-Dichloropropene	ND	0.0073	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dibromo-3-chloropropane	ND	0.021	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Dibromochloromethane	ND	0.0079	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Dibromomethane	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dichlorobenzene	ND	0.010	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,3-Dichlorobenzene	ND	0.0093	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,4-Dichlorobenzene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Dichlorodifluoromethane	ND	0.019	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1-Dichloroethane	ND	0.014	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1-Dichloroethene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2-Dichloropropane	ND	0.0096	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,3-Dichloropropane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2,2-Dichloropropane	ND	0.0070	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1-Dichloropropene	ND	0.0059	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Hexachlorobutadiene	ND	0.033	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
2-Hexanone	0.036	0.021	0.49	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
Isopropylbenzene	ND	0.0091	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
4-Isopropyltoluene	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
4-Methyl-2-pentanone	ND	0.057	0.49		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/24/2021 1:56:29 AM	62009
n-Propylbenzene	ND	0.0079	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
sec-Butylbenzene	ND	0.041	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Styrene	ND	0.0067	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
tert-Butylbenzene	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,1,2-Tetrachloroethane	ND	0.0072	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,2,2-Tetrachloroethane	0.019	0.016	0.049	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
Tetrachloroethene (PCE)	ND	0.013	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
trans-1,2-DCE	ND	0.0095	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
trans-1,3-Dichloropropene	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,3-Trichlorobenzene	ND	0.0076	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,4-Trichlorobenzene	ND	0.017	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,1-Trichloroethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,1,2-Trichloroethane	ND	0.012	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Trichloroethene (TCE)	ND	0.0096	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Trichlorofluoromethane	ND	0.011	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
1,2,3-Trichloropropane	ND	0.021	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS8 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:25:00 AM
Lab ID: 2108721-048 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0094	0.049		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Xylenes, Total	ND	0.026	0.098		mg/Kg	1	8/24/2021 1:56:29 AM	62009
Surr: Dibromofluoromethane	95.9		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
Surr: 1,2-Dichloroethane-d4	104		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
Surr: Toluene-d8	100		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
Surr: 4-Bromofluorobenzene	108		70-130		%Rec	1	8/24/2021 1:56:29 AM	62009
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	1.6	1.4	4.9	J	mg/Kg	1	8/24/2021 1:56:29 AM	62009
Surr: BFB	102	0	70-130		%Rec	1	8/24/2021 1:56:29 AM	62009

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	110	4.8	9.8		mg/Kg	1	8/20/2021 11:32:09 AM	62016
Motor Oil Range Organics (MRO)	86	49	49		mg/Kg	1	8/20/2021 11:32:09 AM	62016
Surr: DNOP	104	0	70-130		%Rec	1	8/20/2021 11:32:09 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.9	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Barium	470	10	21		mg/Kg	200	8/30/2021 2:32:59 PM	62063
Cadmium	ND	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Chromium	21	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Lead	43	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Selenium	2.1	0.60	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
Silver	ND	0.52	1.0		mg/Kg	10	8/27/2021 3:16:06 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.21	0.0028	0.036		mg/Kg	1	8/25/2021 12:42:24 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Acenaphthylene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Aniline	ND	0.64	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Anthracene	ND	0.84	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Azobenzene	ND	0.93	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benz(a)anthracene	ND	0.60	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(a)pyrene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(b)fluoranthene	ND	0.99	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(g,h,i)perylene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzo(k)fluoranthene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzoic acid	ND	1.2	9.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Benzyl alcohol	ND	0.76	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-chloroethoxy)methane	ND	0.71	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-chloroethyl)ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-chloroisopropyl)ether	ND	0.94	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Bis(2-ethylhexyl)phthalate	ND	2.0	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Bromophenyl phenyl ether	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Butyl benzyl phthalate	ND	0.57	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Carbazole	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Chloro-3-methylphenol	ND	0.78	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Chloroaniline	ND	0.90	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Chloronaphthalene	ND	0.88	2.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Chlorophenol	ND	1.0	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Chlorophenyl phenyl ether	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052

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Qualifiers:

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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Di-n-butyl phthalate	ND	2.6	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Di-n-octyl phthalate	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Dibenz(a,h)anthracene	ND	0.98	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Dibenzofuran	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,2-Dichlorobenzene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,3-Dichlorobenzene	ND	0.66	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,4-Dichlorobenzene	ND	0.79	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
3,3´-Dichlorobenzidine	ND	1.4	2.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Diethyl phthalate	ND	3.0	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Dimethyl phthalate	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dichlorophenol	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dimethylphenol	ND	0.66	2.8	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4,6-Dinitro-2-methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dinitrophenol	ND	0.47	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4-Dinitrotoluene	ND	1.1	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,6-Dinitrotoluene	ND	0.95	4.6	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Fluoranthene	ND	0.75	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Fluorene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachlorobenzene	ND	0.83	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachlorobutadiene	ND	0.87	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Hexachloroethane	ND	0.82	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Indeno(1,2,3-cd)pyrene	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Isophorone	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1-Methylnaphthalene	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Methylnaphthalene	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Methylphenol	ND	0.78	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
3+4-Methylphenol	ND	0.77	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
N-Nitrosodi-n-propylamine	ND	0.86	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
N-Nitrosodimethylamine	ND	1.4	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
N-Nitrosodiphenylamine	ND	0.97	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Naphthalene	ND	0.88	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Nitroaniline	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
3-Nitroaniline	ND	1.1	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Nitroaniline	ND	1.2	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Nitrobenzene	ND	0.76	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2-Nitrophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
4-Nitrophenol	ND	0.76	2.3	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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J	Analyte detected below quantitation limits
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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.80	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Phenanthrene	ND	0.95	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Phenol	ND	0.72	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Pyrene	ND	0.70	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Pyridine	ND	1.5	3.7	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
1,2,4-Trichlorobenzene	ND	0.85	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4,5-Trichlorophenol	ND	0.59	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
2,4,6-Trichlorophenol	ND	0.80	1.9	D	mg/Kg	10	8/31/2021 5:10:50 PM	62052
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 5:10:50 PM	62052
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0067	0.017		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Toluene	ND	0.0045	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Ethylbenzene	ND	0.0085	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Methyl tert-butyl ether (MTBE)	ND	0.020	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,4-Trimethylbenzene	0.027	0.0049	0.035	J	mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,3,5-Trimethylbenzene	0.0085	0.0079	0.035	J	mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dichloroethane (EDC)	ND	0.0080	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dibromoethane (EDB)	ND	0.014	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Naphthalene	ND	0.013	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1-Methylnaphthalene	ND	0.040	0.14		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Methylnaphthalene	ND	0.032	0.14		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Acetone	ND	0.11	0.52		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromobenzene	ND	0.0074	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromodichloromethane	ND	0.0045	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromoform	ND	0.0084	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Bromomethane	ND	0.058	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Butanone	ND	0.15	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Carbon disulfide	ND	0.014	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Carbon tetrachloride	ND	0.0039	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chlorobenzene	ND	0.0063	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chloroethane	ND	0.013	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chloroform	ND	0.0050	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Chloromethane	ND	0.012	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Chlorotoluene	ND	0.0047	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646

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Qualifiers:

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ND	Not Detected at the Reporting Limit
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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.018	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
cis-1,2-DCE	ND	0.017	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
cis-1,3-Dichloropropene	ND	0.0052	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dibromo-3-chloropropane	ND	0.015	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Dibromochloromethane	ND	0.0056	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Dibromomethane	ND	0.0082	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dichlorobenzene	ND	0.0073	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,3-Dichlorobenzene	ND	0.0066	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,4-Dichlorobenzene	ND	0.0094	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Dichlorodifluoromethane	ND	0.014	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1-Dichloroethane	ND	0.010	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1-Dichloroethene	ND	0.0075	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2-Dichloropropane	ND	0.0068	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,3-Dichloropropane	ND	0.0077	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2,2-Dichloropropane	ND	0.0050	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1-Dichloropropene	ND	0.0042	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Hexachlorobutadiene	ND	0.024	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
2-Hexanone	ND	0.015	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Isopropylbenzene	ND	0.0065	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
4-Isopropyltoluene	ND	0.0090	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
4-Methyl-2-pentanone	ND	0.041	0.35		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Methylene chloride	ND	0.025	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
n-Butylbenzene	ND	0.0094	0.10		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
n-Propylbenzene	ND	0.0056	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
sec-Butylbenzene	ND	0.029	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Styrene	ND	0.0048	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
tert-Butylbenzene	ND	0.0081	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,1,2-Tetrachloroethane	ND	0.0051	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,2,2-Tetrachloroethane	ND	0.011	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Tetrachloroethene (PCE)	ND	0.0096	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
trans-1,2-DCE	ND	0.0068	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
trans-1,3-Dichloropropene	ND	0.0082	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,3-Trichlorobenzene	ND	0.0054	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,4-Trichlorobenzene	ND	0.012	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,1-Trichloroethane	ND	0.0077	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,1,2-Trichloroethane	ND	0.0088	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Trichloroethene (TCE)	ND	0.0069	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Trichlorofluoromethane	ND	0.0079	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
1,2,3-Trichloropropane	ND	0.015	0.070		mg/Kg	1	8/19/2021 10:04:46 AM	A80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (0.5')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:30:00 AM
Lab ID: 2108721-049 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0067	0.035		mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Xylenes, Total	0.035	0.018	0.070	J	mg/Kg	1	8/19/2021 10:04:46 AM	A80646
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
Surr: Toluene-d8	102		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
Surr: 4-Bromofluorobenzene	90.6		70-130		%Rec	1	8/19/2021 10:04:46 AM	A80646
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.97	3.5		mg/Kg	1	8/19/2021 10:04:46 AM	B80646
Surr: BFB	91.2	0	70-130		%Rec	1	8/19/2021 10:04:46 AM	B80646

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	9.4	4.8	9.6	J	mg/Kg	1	8/20/2021 9:03:55 AM	62016
Motor Oil Range Organics (MRO)	65	48	48		mg/Kg	1	8/20/2021 9:03:55 AM	62016
Surr: DNOP	105	0	70-130		%Rec	1	8/20/2021 9:03:55 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.9	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Barium	390	9.6	19		mg/Kg	200	8/30/2021 1:41:01 PM	62063
Cadmium	ND	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Chromium	36	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Lead	20	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Selenium	1.6	0.55	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
Silver	ND	0.48	0.96		mg/Kg	10	8/27/2021 3:25:12 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.21	0.0026	0.033		mg/Kg	1	8/25/2021 12:44:35 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Azobenzene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzoic acid	ND	1.2	10	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Benzyl alcohol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Butyl benzyl phthalate	ND	0.61	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Carbazole	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Chloronaphthalene	ND	0.95	2.5	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Chlorophenyl phenyl ether	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,2-Dichlorobenzene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,4-Dichlorobenzene	ND	0.85	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Diethyl phthalate	ND	3.3	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Fluoranthene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachlorobenzene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachlorobutadiene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Indeno(1,2,3-cd)pyrene	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Isophorone	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1-Methylnaphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Naphthalene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Nitrobenzene	ND	0.82	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Pyrene	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
1,2,4-Trichlorobenzene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4,5-Trichlorophenol	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 5:52:19 PM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 5:52:19 PM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0074	0.019		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Toluene	0.0085	0.0050	0.039	J	mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Ethylbenzene	ND	0.0094	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.022	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,4-Trimethylbenzene	0.023	0.0055	0.039	J	mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,3,5-Trimethylbenzene	ND	0.0087	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dichloroethane (EDC)	ND	0.0088	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dibromoethane (EDB)	ND	0.015	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Naphthalene	ND	0.014	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1-Methylnaphthalene	ND	0.044	0.15		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Methylnaphthalene	ND	0.036	0.15		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Acetone	ND	0.13	0.58		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromobenzene	ND	0.0082	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromodichloromethane	ND	0.0049	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromoform	ND	0.0093	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Bromomethane	ND	0.064	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Butanone	ND	0.17	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Carbon disulfide	ND	0.016	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Carbon tetrachloride	ND	0.0043	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chlorobenzene	ND	0.0070	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chloroethane	ND	0.014	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chloroform	ND	0.0055	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Chloromethane	ND	0.014	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Chlorotoluene	ND	0.0052	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.020	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
cis-1,2-DCE	ND	0.019	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
cis-1,3-Dichloropropene	ND	0.0057	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dibromo-3-chloropropane	ND	0.017	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Dibromochloromethane	ND	0.0062	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Dibromomethane	ND	0.0090	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dichlorobenzene	ND	0.0080	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,3-Dichlorobenzene	ND	0.0073	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,4-Dichlorobenzene	ND	0.010	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Dichlorodifluoromethane	ND	0.015	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1-Dichloroethane	ND	0.011	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1-Dichloroethene	ND	0.0083	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2-Dichloropropane	ND	0.0075	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,3-Dichloropropane	ND	0.0085	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2,2-Dichloropropane	ND	0.0055	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1-Dichloropropene	ND	0.0047	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Hexachlorobutadiene	ND	0.026	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
2-Hexanone	ND	0.017	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Isopropylbenzene	ND	0.0072	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
4-Isopropyltoluene	ND	0.010	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
4-Methyl-2-pentanone	ND	0.045	0.39		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Methylene chloride	ND	0.028	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
n-Butylbenzene	ND	0.010	0.12		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
n-Propylbenzene	ND	0.0062	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
sec-Butylbenzene	ND	0.032	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Styrene	ND	0.0053	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
tert-Butylbenzene	ND	0.0090	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0057	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,2,2-Tetrachloroethane	ND	0.013	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Tetrachloroethene (PCE)	ND	0.011	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
trans-1,2-DCE	ND	0.0075	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
trans-1,3-Dichloropropene	ND	0.0091	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,3-Trichlorobenzene	ND	0.0060	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,4-Trichlorobenzene	ND	0.013	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,1-Trichloroethane	ND	0.0085	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,1,2-Trichloroethane	ND	0.0097	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Trichloroethene (TCE)	ND	0.0076	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Trichlorofluoromethane	ND	0.0088	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
1,2,3-Trichloropropane	ND	0.016	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-SS9 (1')
Project: Railcar Release Investigation **Collection Date:** 8/12/2021 9:35:00 AM
Lab ID: 2108721-050 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0074	0.039		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Xylenes, Total	ND	0.020	0.077		mg/Kg	1	8/19/2021 7:27:04 PM	A80682
Surr: Dibromofluoromethane	106		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
Surr: 1,2-Dichloroethane-d4	95.7		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
Surr: Toluene-d8	107		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
Surr: 4-Bromofluorobenzene	91.3		70-130		%Rec	1	8/19/2021 7:27:04 PM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	1.1	3.9		mg/Kg	1	8/19/2021 7:27:04 PM	B80682
Surr: BFB	94.7	0	70-130		%Rec	1	8/19/2021 7:27:04 PM	B80682

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	46000	240	490		mg/Kg	50	8/19/2021 12:26:12 PM	62016
Motor Oil Range Organics (MRO)	9500	2400	2400		mg/Kg	50	8/19/2021 12:26:12 PM	62016
Surr: DNOP	0	0	70-130	S	%Rec	50	8/19/2021 12:26:12 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.8	0.49	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
Barium	310	9.8	20		mg/Kg	200	8/30/2021 1:44:30 PM	62063
Cadmium	ND	0.49	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
Chromium	73	9.8	20		mg/Kg	200	8/30/2021 1:44:30 PM	62063
Lead	84	9.8	20		mg/Kg	200	8/30/2021 1:44:30 PM	62063
Selenium	1.8	0.56	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
Silver	ND	0.49	0.98		mg/Kg	10	8/27/2021 3:34:18 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.12	0.0027	0.034		mg/Kg	1	8/25/2021 12:46:46 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Acenaphthylene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Aniline	ND	170	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Anthracene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Azobenzene	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benz(a)anthracene	ND	160	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(a)pyrene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(b)fluoranthene	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(g,h,i)perylene	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzo(k)fluoranthene	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzoic acid	ND	310	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Benzyl alcohol	ND	200	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-chloroethoxy)methane	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-chloroethyl)ether	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-chloroisopropyl)ether	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Bis(2-ethylhexyl)phthalate	ND	540	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Bromophenyl phenyl ether	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Butyl benzyl phthalate	ND	150	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Carbazole	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Chloro-3-methylphenol	ND	210	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Chloroaniline	ND	240	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Chloronaphthalene	ND	240	620	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Chlorophenol	ND	270	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Chlorophenyl phenyl ether	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082

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P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Di-n-butyl phthalate	ND	690	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Di-n-octyl phthalate	ND	320	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Dibenz(a,h)anthracene	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Dibenzofuran	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,2-Dichlorobenzene	ND	200	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,3-Dichlorobenzene	ND	180	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,4-Dichlorobenzene	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
3,3´-Dichlorobenzidine	ND	370	620	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Diethyl phthalate	ND	810	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Dimethyl phthalate	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dichlorophenol	ND	200	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dimethylphenol	ND	180	750	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4,6-Dinitro-2-methylphenol	ND	210	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dinitrophenol	ND	120	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4-Dinitrotoluene	ND	300	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,6-Dinitrotoluene	ND	250	1200	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Fluoranthene	ND	200	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Fluorene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachlorobenzene	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachlorobutadiene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachlorocyclopentadiene	ND	280	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Hexachloroethane	ND	220	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Indeno(1,2,3-cd)pyrene	ND	290	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Isophorone	ND	200	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1-Methylnaphthalene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Methylnaphthalene	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Methylphenol	ND	210	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
3+4-Methylphenol	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
N-Nitrosodi-n-propylamine	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
N-Nitrosodimethylamine	ND	370	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
N-Nitrosodiphenylamine	ND	260	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Naphthalene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Nitroaniline	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
3-Nitroaniline	ND	290	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Nitroaniline	ND	320	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Nitrobenzene	ND	200	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2-Nitrophenol	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
4-Nitrophenol	ND	200	620	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	210	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Phenanthrene	ND	250	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Phenol	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Pyrene	ND	190	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Pyridine	ND	400	990	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
1,2,4-Trichlorobenzene	ND	230	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4,5-Trichlorophenol	ND	160	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
2,4,6-Trichlorophenol	ND	210	500	D	mg/Kg	100	8/26/2021 6:00:44 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/26/2021 6:00:44 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.32	0.033	0.086		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Toluene	ND	0.022	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Ethylbenzene	0.84	0.042	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.098	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,4-Trimethylbenzene	0.89	0.024	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,3,5-Trimethylbenzene	0.053	0.039	0.17	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dichloroethane (EDC)	ND	0.039	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dibromoethane (EDB)	ND	0.068	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Naphthalene	ND	0.064	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1-Methylnaphthalene	5.6	0.20	0.69		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Methylnaphthalene	0.46	0.16	0.69	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Acetone	ND	0.56	2.6		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromobenzene	ND	0.037	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromodichloromethane	ND	0.022	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromoform	ND	0.042	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Bromomethane	ND	0.29	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Butanone	ND	0.75	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Carbon disulfide	ND	0.071	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Carbon tetrachloride	ND	0.019	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chlorobenzene	ND	0.031	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chloroethane	ND	0.065	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chloroform	ND	0.025	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Chloromethane	ND	0.061	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Chlorotoluene	ND	0.023	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.091	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
cis-1,2-DCE	ND	0.086	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
cis-1,3-Dichloropropene	ND	0.026	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dibromo-3-chloropropane	ND	0.075	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Dibromochloromethane	ND	0.028	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Dibromomethane	ND	0.040	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dichlorobenzene	ND	0.036	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,3-Dichlorobenzene	ND	0.033	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,4-Dichlorobenzene	ND	0.046	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Dichlorodifluoromethane	ND	0.067	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1-Dichloroethane	ND	0.050	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1-Dichloroethene	ND	0.037	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2-Dichloropropane	ND	0.034	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,3-Dichloropropane	ND	0.038	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2,2-Dichloropropane	ND	0.025	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1-Dichloropropene	ND	0.021	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Hexachlorobutadiene	ND	0.12	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
2-Hexanone	ND	0.076	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Isopropylbenzene	0.033	0.032	0.17	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
4-Isopropyltoluene	ND	0.045	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
4-Methyl-2-pentanone	ND	0.20	1.7		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Methylene chloride	ND	0.13	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
n-Butylbenzene	ND	0.046	0.52		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
n-Propylbenzene	0.064	0.028	0.17	J	mg/Kg	5	8/19/2021 9:21:37 PM	A80682
sec-Butylbenzene	ND	0.14	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Styrene	ND	0.024	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
tert-Butylbenzene	ND	0.040	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,1,2-Tetrachloroethane	ND	0.025	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,2,2-Tetrachloroethane	ND	0.056	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Tetrachloroethene (PCE)	ND	0.047	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
trans-1,2-DCE	ND	0.033	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
trans-1,3-Dichloropropene	ND	0.041	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,3-Trichlorobenzene	ND	0.027	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,4-Trichlorobenzene	ND	0.060	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,1-Trichloroethane	ND	0.038	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,1,2-Trichloroethane	ND	0.043	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Trichloroethene (TCE)	ND	0.034	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Trichlorofluoromethane	ND	0.039	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
1,2,3-Trichloropropane	ND	0.073	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD1
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-051 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.033	0.17		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Xylenes, Total	1.1	0.091	0.35		mg/Kg	5	8/19/2021 9:21:37 PM	A80682
Surr: Dibromofluoromethane	100		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
Surr: Toluene-d8	105		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
Surr: 4-Bromofluorobenzene	89.6		70-130		%Rec	5	8/19/2021 9:21:37 PM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	34	4.8	17		mg/Kg	5	8/19/2021 9:21:37 PM	B80682
Surr: BFB	96.6	0	70-130		%Rec	5	8/19/2021 9:21:37 PM	B80682

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Qualifiers:

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D	Sample Diluted Due to Matrix
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ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	710	97	200		mg/Kg	20	8/19/2021 11:15:16 AM	62016
Motor Oil Range Organics (MRO)	2200	980	980		mg/Kg	20	8/19/2021 11:15:16 AM	62016
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 11:15:16 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.0	0.50	1.0	J	mg/Kg	10	8/27/2021 3:43:24 PM	62063
Barium	270	10	20		mg/Kg	200	8/30/2021 1:47:58 PM	62063
Cadmium	ND	0.50	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
Chromium	6.0	0.50	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
Lead	ND	10	20		mg/Kg	200	8/27/2021 3:38:51 PM	62063
Selenium	3.5	0.58	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 3:43:24 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.012	0.0026	0.033	J	mg/Kg	1	8/25/2021 12:48:56 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Acenaphthylene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Aniline	ND	0.69	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Anthracene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Azobenzene	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benz(a)anthracene	ND	0.64	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(a)pyrene	ND	0.94	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(b)fluoranthene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(g,h,i)perylene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzo(k)fluoranthene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzoic acid	ND	1.2	9.9	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Benzyl alcohol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-chloroethoxy)methane	ND	0.76	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-chloroisopropyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Bis(2-ethylhexyl)phthalate	ND	2.1	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Butyl benzyl phthalate	ND	0.60	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Carbazole	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Chloro-3-methylphenol	ND	0.84	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Chloroaniline	ND	0.97	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Chloronaphthalene	ND	0.94	2.5	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Chlorophenol	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Chlorophenyl phenyl ether	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Di-n-butyl phthalate	ND	2.8	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Di-n-octyl phthalate	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,2-Dichlorobenzene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,3-Dichlorobenzene	ND	0.71	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,4-Dichlorobenzene	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.5	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Diethyl phthalate	ND	3.2	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Dimethyl phthalate	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dichlorophenol	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dimethylphenol	ND	0.71	3.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4,6-Dinitro-2-methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dinitrophenol	ND	0.50	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,6-Dinitrotoluene	ND	1.0	5.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Fluoranthene	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Fluorene	ND	0.89	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachlorobenzene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachlorobutadiene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Hexachloroethane	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Isophorone	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1-Methylnaphthalene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Methylnaphthalene	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Methylphenol	ND	0.84	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
3+4-Methylphenol	ND	0.82	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
N-Nitrosodi-n-propylamine	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Naphthalene	ND	0.93	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
3-Nitroaniline	ND	1.2	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Nitrobenzene	ND	0.81	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2-Nitrophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
4-Nitrophenol	ND	0.82	2.5	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.86	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Phenol	ND	0.77	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Pyrene	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Pyridine	ND	1.6	4.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
1,2,4-Trichlorobenzene	ND	0.91	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4,5-Trichlorophenol	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
2,4,6-Trichlorophenol	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 6:33:51 PM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 6:33:51 PM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.34	0.0060	0.016		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Toluene	0.066	0.0040	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Ethylbenzene	0.64	0.0076	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Methyl tert-butyl ether (MTBE)	0.071	0.018	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,4-Trimethylbenzene	1.2	0.0044	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,3,5-Trimethylbenzene	0.32	0.0070	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dichloroethane (EDC)	ND	0.0071	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Naphthalene	0.076	0.012	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1-Methylnaphthalene	ND	0.036	0.12		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Methylnaphthalene	0.055	0.029	0.12	J	mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Acetone	ND	0.10	0.47		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromobenzene	ND	0.0066	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromodichloromethane	ND	0.0040	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromoform	ND	0.0075	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Bromomethane	ND	0.052	0.094		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Butanone	ND	0.14	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Carbon tetrachloride	ND	0.0035	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chlorobenzene	ND	0.0056	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chloroethane	ND	0.012	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chloroform	ND	0.0044	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Chloromethane	ND	0.011	0.094		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Chlorotoluene	ND	0.0042	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dibromo-3-chloropropane	ND	0.013	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Dibromochloromethane	ND	0.0050	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Dibromomethane	ND	0.0073	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dichlorobenzene	ND	0.0065	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,3-Dichlorobenzene	ND	0.0059	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,4-Dichlorobenzene	ND	0.0084	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1-Dichloroethane	ND	0.0091	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1-Dichloroethene	ND	0.0067	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2-Dichloropropane	ND	0.0061	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,3-Dichloropropane	ND	0.0069	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2,2-Dichloropropane	ND	0.0044	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1-Dichloropropene	ND	0.0038	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Hexachlorobutadiene	ND	0.021	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
2-Hexanone	ND	0.014	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Isopropylbenzene	0.035	0.0058	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
4-Isopropyltoluene	ND	0.0080	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Methylene chloride	ND	0.023	0.094		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
n-Butylbenzene	0.037	0.0084	0.094	J	mg/Kg	1	8/19/2021 11:16:14 PM	A80682
n-Propylbenzene	0.19	0.0050	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
sec-Butylbenzene	ND	0.026	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Styrene	ND	0.0043	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
tert-Butylbenzene	ND	0.0072	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0046	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,2,2-Tetrachloroethane	ND	0.010	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Tetrachloroethene (PCE)	ND	0.0086	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
trans-1,2-DCE	ND	0.0060	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
trans-1,3-Dichloropropene	ND	0.0073	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,3-Trichlorobenzene	ND	0.0048	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,1-Trichloroethane	ND	0.0069	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,1,2-Trichloroethane	ND	0.0078	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Trichloroethene (TCE)	ND	0.0061	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Trichlorofluoromethane	ND	0.0071	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
1,2,3-Trichloropropane	ND	0.013	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
P	Sample pH Not In Range
PQL	Practical Quanitative Limit
RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD2
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-052 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0060	0.031		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Xylenes, Total	2.2	0.016	0.062		mg/Kg	1	8/19/2021 11:16:14 PM	A80682
Surr: Dibromofluoromethane	95.9		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
Surr: 1,2-Dichloroethane-d4	96.5		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
Surr: Toluene-d8	106		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
Surr: 4-Bromofluorobenzene	92.6		70-130		%Rec	1	8/19/2021 11:16:14 PM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	55	0.87	3.1		mg/Kg	1	8/19/2021 11:16:14 PM	B80682
Surr: BFB	95.6	0	70-130		%Rec	1	8/19/2021 11:16:14 PM	B80682

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	18000	230	460		mg/Kg	50	8/20/2021 6:46:28 PM	62016
Motor Oil Range Organics (MRO)	ND	2300	2300	D	mg/Kg	50	8/20/2021 6:46:28 PM	62016
Surr: DNOP	0	0	70-130	S	%Rec	50	8/20/2021 6:46:28 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Barium	390	10	20		mg/Kg	200	8/30/2021 1:51:25 PM	62063
Cadmium	ND	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Chromium	16	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Lead	14	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Selenium	2.0	0.59	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
Silver	ND	0.51	1.0		mg/Kg	10	8/27/2021 3:52:31 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.010	0.0027	0.034	J	mg/Kg	1	8/25/2021 12:51:06 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	89	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Acenaphthylene	ND	90	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Aniline	ND	69	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Anthracene	ND	90	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Azobenzene	ND	99	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benz(a)anthracene	ND	64	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(a)pyrene	ND	94	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(b)fluoranthene	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(g,h,i)perylene	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzo(k)fluoranthene	ND	75	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzoic acid	ND	120	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Benzyl alcohol	ND	81	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-chloroethoxy)methane	ND	76	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-chloroethyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-chloroisopropyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Bis(2-ethylhexyl)phthalate	ND	210	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Bromophenyl phenyl ether	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Butyl benzyl phthalate	ND	60	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Carbazole	ND	87	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Chloro-3-methylphenol	ND	84	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Chloroaniline	ND	97	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Chloronaphthalene	ND	94	250	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Chlorophenol	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Chlorophenyl phenyl ether	ND	84	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

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J	Analyte detected below quantitation limits
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RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	88	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Di-n-butyl phthalate	ND	280	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Di-n-octyl phthalate	ND	130	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Dibenz(a,h)anthracene	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Dibenzofuran	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,2-Dichlorobenzene	ND	80	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,3-Dichlorobenzene	ND	71	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,4-Dichlorobenzene	ND	84	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
3,3´-Dichlorobenzidine	ND	150	250	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Diethyl phthalate	ND	320	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Dimethyl phthalate	ND	92	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dichlorophenol	ND	81	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dimethylphenol	ND	71	300	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4,6-Dinitro-2-methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dinitrophenol	ND	50	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4-Dinitrotoluene	ND	120	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,6-Dinitrotoluene	ND	100	500	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Fluoranthene	ND	80	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Fluorene	ND	89	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachlorobenzene	ND	88	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachlorobutadiene	ND	93	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachlorocyclopentadiene	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Hexachloroethane	ND	88	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Indeno(1,2,3-cd)pyrene	ND	110	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Isophorone	ND	81	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1-Methylnaphthalene	ND	91	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Methylnaphthalene	140	82	200	JD	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
3+4-Methylphenol	ND	82	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
N-Nitrosodi-n-propylamine	ND	92	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
N-Nitrosodimethylamine	ND	150	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
N-Nitrosodiphenylamine	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Naphthalene	ND	94	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Nitroaniline	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
3-Nitroaniline	ND	120	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Nitroaniline	ND	130	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Nitrobenzene	ND	82	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2-Nitrophenol	ND	86	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
4-Nitrophenol	ND	82	250	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	86	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Phenanthrene	ND	100	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Phenol	ND	77	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Pyrene	ND	75	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Pyridine	ND	160	400	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
1,2,4-Trichlorobenzene	ND	91	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4,5-Trichlorophenol	ND	63	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
2,4,6-Trichlorophenol	ND	86	200	D	mg/Kg	100	8/26/2021 7:23:11 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/26/2021 7:23:11 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.7	0.013	0.033		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Toluene	0.26	0.0084	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Ethylbenzene	32	0.40	1.6		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
Methyl tert-butyl ether (MTBE)	12	0.037	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,4-Trimethylbenzene	33	0.23	1.6		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
1,3,5-Trimethylbenzene	3.5	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.026	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Naphthalene	39	0.61	3.3		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
1-Methylnaphthalene	42	1.9	6.5		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
2-Methylnaphthalene	71	1.5	6.5		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
Acetone	ND	0.21	0.98		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromobenzene	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromodichloromethane	ND	0.0083	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromoform	ND	0.016	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Bromomethane	ND	0.11	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2-Butanone	ND	0.28	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Carbon disulfide	ND	0.027	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Carbon tetrachloride	ND	0.0073	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chlorobenzene	ND	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chloroethane	ND	0.024	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chloroform	ND	0.0092	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Chloromethane	ND	0.023	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2-Chlorotoluene	ND	0.0087	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.034	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
cis-1,2-DCE	ND	0.032	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
cis-1,3-Dichloropropene	ND	0.0097	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.028	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Dibromochloromethane	ND	0.010	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Dibromomethane	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dichlorobenzene	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,3-Dichlorobenzene	ND	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,4-Dichlorobenzene	ND	0.017	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Dichlorodifluoromethane	ND	0.025	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1-Dichloroethane	ND	0.019	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1-Dichloroethene	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2-Dichloropropane	ND	0.013	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,3-Dichloropropane	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2,2-Dichloropropane	ND	0.0093	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1-Dichloropropene	ND	0.0079	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Hexachlorobutadiene	ND	0.044	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
2-Hexanone	ND	0.028	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Isopropylbenzene	4.0	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
4-Isopropyltoluene	2.2	0.017	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
4-Methyl-2-pentanone	ND	0.076	0.65		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Methylene chloride	ND	0.047	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
n-Butylbenzene	5.9	0.017	0.20		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
n-Propylbenzene	15	0.26	1.6		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
sec-Butylbenzene	3.6	0.054	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Styrene	ND	0.0089	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
tert-Butylbenzene	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0096	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.021	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Tetrachloroethene (PCE)	ND	0.018	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
trans-1,2-DCE	ND	0.013	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
trans-1,3-Dichloropropene	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,3-Trichlorobenzene	ND	0.010	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,4-Trichlorobenzene	ND	0.023	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,1-Trichloroethane	ND	0.014	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,1,2-Trichloroethane	ND	0.016	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Trichloroethene (TCE)	ND	0.013	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Trichlorofluoromethane	ND	0.015	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
1,2,3-Trichloropropane	ND	0.027	0.13		mg/Kg	2	8/20/2021 12:13:19 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD3
Project: Railcar Release Investigation **Collection Date:** 8/11/2021
Lab ID: 2108721-053 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.012	0.065		mg/Kg	2	8/20/2021 12:13:19 AM	A80682
Xylenes, Total	19	0.86	3.3		mg/Kg	50	8/24/2021 3:44:34 AM	R80737
Surr: Dibromofluoromethane	83.1		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
Surr: 1,2-Dichloroethane-d4	87.1		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
Surr: Toluene-d8	99.8		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
Surr: 4-Bromofluorobenzene	96.6		70-130		%Rec	2	8/20/2021 12:13:19 AM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	670	45	160		mg/Kg	50	8/24/2021 3:44:34 AM	G80737
Surr: BFB	113	0	70-130		%Rec	50	8/24/2021 3:44:34 AM	G80737

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J	Analyte detected below quantitation limits
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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	ND	4.9	9.9		mg/Kg	1	8/18/2021 4:10:47 PM	62016
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	8/18/2021 4:10:47 PM	62016
Surr: DNOP	119	0	70-130		%Rec	1	8/18/2021 4:10:47 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	0.93	0.50	1.0	J	mg/Kg	10	8/27/2021 4:10:46 PM	62063
Barium	320	10	20		mg/Kg	200	8/30/2021 2:05:19 PM	62063
Cadmium	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Chromium	21	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Lead	13	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Selenium	2.2	0.58	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:10:46 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.0086	0.0027	0.034	J	mg/Kg	1	8/25/2021 12:53:16 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	0.084	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Acenaphthylene	ND	0.085	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Aniline	ND	0.065	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Anthracene	ND	0.085	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Azobenzene	ND	0.094	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benz(a)anthracene	ND	0.061	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(a)pyrene	ND	0.089	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(b)fluoranthene	ND	0.10	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(g,h,i)perylene	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzo(k)fluoranthene	ND	0.071	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzoic acid	ND	0.12	0.94		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Benzyl alcohol	ND	0.077	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-chloroethoxy)methane	ND	0.072	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-chloroethyl)ether	ND	0.099	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-chloroisopropyl)ether	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Bis(2-ethylhexyl)phthalate	ND	0.20	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Bromophenyl phenyl ether	ND	0.098	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Butyl benzyl phthalate	ND	0.057	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Carbazole	ND	0.083	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Chloro-3-methylphenol	ND	0.079	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Chloroaniline	ND	0.092	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Chloronaphthalene	ND	0.089	0.24		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Chlorophenol	ND	0.10	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Chlorophenyl phenyl ether	ND	0.080	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082

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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	0.083	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Di-n-butyl phthalate	0.32	0.26	0.38	J	mg/Kg	1	8/26/2021 10:55:51 AM	62082
Di-n-octyl phthalate	ND	0.12	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Dibenz(a,h)anthracene	ND	0.099	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Dibenzofuran	ND	0.098	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,2-Dichlorobenzene	ND	0.076	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,3-Dichlorobenzene	ND	0.067	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,4-Dichlorobenzene	ND	0.080	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
3,3´-Dichlorobenzidine	ND	0.14	0.24		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Diethyl phthalate	ND	0.31	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Dimethyl phthalate	ND	0.087	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dichlorophenol	ND	0.077	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dimethylphenol	ND	0.067	0.28		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4,6-Dinitro-2-methylphenol	ND	0.079	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dinitrophenol	ND	0.047	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,6-Dinitrotoluene	ND	0.096	0.47		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Fluoranthene	ND	0.076	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Fluorene	ND	0.084	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachlorobenzene	ND	0.084	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachlorobutadiene	ND	0.088	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Hexachloroethane	ND	0.083	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Indeno(1,2,3-cd)pyrene	ND	0.11	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Isophorone	ND	0.077	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1-Methylnaphthalene	ND	0.087	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Methylnaphthalene	ND	0.078	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Methylphenol	ND	0.079	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
3+4-Methylphenol	ND	0.078	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
N-Nitrosodi-n-propylamine	ND	0.087	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
N-Nitrosodimethylamine	ND	0.14	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
N-Nitrosodiphenylamine	ND	0.098	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Naphthalene	ND	0.089	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Nitroaniline	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
3-Nitroaniline	ND	0.11	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Nitroaniline	ND	0.12	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Nitrobenzene	ND	0.077	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2-Nitrophenol	ND	0.081	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
4-Nitrophenol	ND	0.077	0.24		mg/Kg	1	8/26/2021 10:55:51 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	0.081	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Phenanthrene	ND	0.096	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Phenol	ND	0.073	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Pyrene	ND	0.071	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Pyridine	ND	0.15	0.38		mg/Kg	1	8/26/2021 10:55:51 AM	62082
1,2,4-Trichlorobenzene	ND	0.086	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4,5-Trichlorophenol	ND	0.060	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
2,4,6-Trichlorophenol	ND	0.081	0.19		mg/Kg	1	8/26/2021 10:55:51 AM	62082
Surr: 2-Fluorophenol	40.8		20.3-74.1		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: Phenol-d5	49.1		23.1-92.7		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: 2,4,6-Tribromophenol	63.8		17.3-122		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: Nitrobenzene-d5	30.4		24.7-73.2		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: 2-Fluorobiphenyl	40.3		21.5-90.1		%Rec	1	8/26/2021 10:55:51 AM	62082
Surr: 4-Terphenyl-d14	89.7		15-140		%Rec	1	8/26/2021 10:55:51 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	0.57	0.0050	0.013		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Toluene	ND	0.0034	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Ethylbenzene	0.15	0.0063	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Methyl tert-butyl ether (MTBE)	1.4	0.015	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0037	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,3,5-Trimethylbenzene	ND	0.0058	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.0059	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.010	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Naphthalene	0.015	0.0097	0.052	J	mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1-Methylnaphthalene	ND	0.030	0.10		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Methylnaphthalene	ND	0.024	0.10		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Acetone	ND	0.085	0.39		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromobenzene	ND	0.0055	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromodichloromethane	ND	0.0033	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromoform	ND	0.0063	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Bromomethane	ND	0.043	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Butanone	ND	0.11	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Carbon disulfide	ND	0.011	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Carbon tetrachloride	ND	0.0029	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chlorobenzene	ND	0.0047	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chloroethane	ND	0.0097	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chloroform	ND	0.0037	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Chloromethane	ND	0.0091	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Chlorotoluene	ND	0.0035	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.014	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
cis-1,2-DCE	ND	0.013	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
cis-1,3-Dichloropropene	ND	0.0039	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.011	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Dibromochloromethane	ND	0.0042	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Dibromomethane	ND	0.0061	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dichlorobenzene	ND	0.0054	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,3-Dichlorobenzene	ND	0.0049	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,4-Dichlorobenzene	ND	0.0070	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Dichlorodifluoromethane	ND	0.010	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1-Dichloroethane	ND	0.0076	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1-Dichloroethene	ND	0.0056	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2-Dichloropropane	ND	0.0051	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,3-Dichloropropane	ND	0.0057	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2,2-Dichloropropane	ND	0.0037	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1-Dichloropropene	ND	0.0031	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Hexachlorobutadiene	ND	0.018	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
2-Hexanone	ND	0.011	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Isopropylbenzene	0.012	0.0048	0.026	J	mg/Kg	1	8/20/2021 3:05:05 AM	A80682
4-Isopropyltoluene	ND	0.0067	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
4-Methyl-2-pentanone	ND	0.030	0.26		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Methylene chloride	ND	0.019	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
n-Butylbenzene	ND	0.0070	0.078		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
n-Propylbenzene	0.034	0.0042	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
sec-Butylbenzene	ND	0.021	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Styrene	ND	0.0036	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
tert-Butylbenzene	ND	0.0060	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0038	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.0084	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Tetrachloroethene (PCE)	ND	0.0071	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
trans-1,2-DCE	ND	0.0050	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
trans-1,3-Dichloropropene	ND	0.0061	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0040	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,4-Trichlorobenzene	ND	0.0091	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,1-Trichloroethane	ND	0.0057	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,1,2-Trichloroethane	ND	0.0065	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Trichloroethene (TCE)	ND	0.0051	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Trichlorofluoromethane	ND	0.0059	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
1,2,3-Trichloropropane	ND	0.011	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD4
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-054 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0050	0.026		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Xylenes, Total	ND	0.014	0.052		mg/Kg	1	8/20/2021 3:05:05 AM	A80682
Surr: Dibromofluoromethane	104		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
Surr: 1,2-Dichloroethane-d4	103		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
Surr: Toluene-d8	106		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
Surr: 4-Bromofluorobenzene	90.4		70-130		%Rec	1	8/20/2021 3:05:05 AM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	6.6	0.72	2.6		mg/Kg	1	8/20/2021 3:05:05 AM	B80682
Surr: BFB	96.3	0	70-130		%Rec	1	8/20/2021 3:05:05 AM	B80682

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Qualifiers:

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	7600	98	200		mg/Kg	20	8/19/2021 8:29:40 AM	62016
Motor Oil Range Organics (MRO)	ND	990	990	D	mg/Kg	20	8/19/2021 8:29:40 AM	62016
Surr: DNOP	0	0	70-130	S	%Rec	20	8/19/2021 8:29:40 AM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.1	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Barium	330	10	20		mg/Kg	200	8/30/2021 2:08:47 PM	62063
Cadmium	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Chromium	23	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Lead	65	10	20		mg/Kg	200	8/27/2021 4:15:19 PM	62063
Selenium	1.8	0.57	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
Silver	ND	0.50	1.0		mg/Kg	10	8/27/2021 4:19:58 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.030	0.0025	0.031	J	mg/Kg	1	8/25/2021 12:59:43 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Acenaphthene	ND	89	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Acenaphthylene	ND	90	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Aniline	ND	69	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Anthracene	ND	90	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Azobenzene	ND	99	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benz(a)anthracene	ND	64	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(a)pyrene	ND	94	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(b)fluoranthene	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(g,h,i)perylene	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzo(k)fluoranthene	ND	75	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzoic acid	ND	120	990	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Benzyl alcohol	ND	81	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-chloroethoxy)methane	ND	76	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-chloroethyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-chloroisopropyl)ether	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Bis(2-ethylhexyl)phthalate	ND	210	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Bromophenyl phenyl ether	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Butyl benzyl phthalate	ND	60	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Carbazole	ND	87	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Chloro-3-methylphenol	ND	84	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Chloroaniline	ND	97	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Chloronaphthalene	ND	94	250	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Chlorophenol	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Chlorophenyl phenyl ether	ND	84	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Chrysene	ND	88	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Di-n-butyl phthalate	ND	280	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Di-n-octyl phthalate	ND	130	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Dibenz(a,h)anthracene	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Dibenzofuran	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,2-Dichlorobenzene	ND	80	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,3-Dichlorobenzene	ND	71	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,4-Dichlorobenzene	ND	84	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
3,3´-Dichlorobenzidine	ND	150	250	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Diethyl phthalate	ND	320	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Dimethyl phthalate	ND	92	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dichlorophenol	ND	81	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dimethylphenol	ND	71	300	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4,6-Dinitro-2-methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dinitrophenol	ND	50	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4-Dinitrotoluene	ND	120	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,6-Dinitrotoluene	ND	100	500	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Fluoranthene	ND	80	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Fluorene	ND	89	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachlorobenzene	ND	88	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachlorobutadiene	ND	93	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachlorocyclopentadiene	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Hexachloroethane	ND	88	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Indeno(1,2,3-cd)pyrene	ND	110	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Isophorone	ND	81	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1-Methylnaphthalene	ND	91	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Methylnaphthalene	ND	82	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Methylphenol	ND	84	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
3+4-Methylphenol	ND	82	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
N-Nitrosodi-n-propylamine	ND	92	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
N-Nitrosodimethylamine	ND	150	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
N-Nitrosodiphenylamine	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Naphthalene	ND	94	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Nitroaniline	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
3-Nitroaniline	ND	120	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Nitroaniline	ND	130	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Nitrobenzene	ND	81	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2-Nitrophenol	ND	86	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
4-Nitrophenol	ND	82	250	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **DAM**	
Pentachlorophenol	ND	86	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Phenanthrene	ND	100	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Phenol	ND	77	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Pyrene	ND	75	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Pyridine	ND	160	400	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
1,2,4-Trichlorobenzene	ND	91	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4,5-Trichlorophenol	ND	63	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
2,4,6-Trichlorophenol	ND	86	200	D	mg/Kg	100	8/26/2021 11:37:18 AM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	100	8/26/2021 11:37:18 AM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	4.0	0.0097	0.025		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Toluene	17	0.16	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Ethylbenzene	13	0.31	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Methyl tert-butyl ether (MTBE)	0.052	0.028	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,4-Trimethylbenzene	41	0.18	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
1,3,5-Trimethylbenzene	14	0.28	1.3		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Naphthalene	10	0.47	2.5		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
1-Methylnaphthalene	5.9	1.4	5.0		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
2-Methylnaphthalene	11	1.2	5.0		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Acetone	ND	0.16	0.75		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682

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Qualifiers:

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D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
cis-1,3-Dichloropropene	ND	0.0075	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,3-Dichlorobenzene	ND	0.0095	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2-Dichloropropane	ND	0.0098	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1-Dichloropropene	ND	0.0061	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Isopropylbenzene	1.4	0.0093	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
4-Isopropyltoluene	0.37	0.013	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
4-Methyl-2-pentanone	ND	0.059	0.50		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
n-Butylbenzene	1.5	0.013	0.15		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
n-Propylbenzene	4.9	0.0081	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
sec-Butylbenzene	0.55	0.041	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0074	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0078	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	2	8/20/2021 4:02:13 AM	A80682

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Qualifiers:

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PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD5
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-055 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Vinyl chloride	ND	0.0096	0.050		mg/Kg	2	8/20/2021 4:02:13 AM	A80682
Xylenes, Total	59	0.66	2.5		mg/Kg	50	8/24/2021 4:11:39 AM	R80737
Surr: Dibromofluoromethane	88.3		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
Surr: 1,2-Dichloroethane-d4	91.6		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
Surr: Toluene-d8	99.1		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
Surr: 4-Bromofluorobenzene	84.4		70-130		%Rec	2	8/20/2021 4:02:13 AM	A80682
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	420	35	130		mg/Kg	50	8/24/2021 4:11:39 AM	G80737
Surr: BFB	108	0	70-130		%Rec	50	8/24/2021 4:11:39 AM	G80737

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RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **SB**	
Diesel Range Organics (DRO)	16	4.6	9.4		mg/Kg	1	8/24/2021 4:20:10 PM	62016
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	8/24/2021 4:20:10 PM	62016
Surr: DNOP	121	0	70-130		%Rec	1	8/24/2021 4:20:10 PM	62016
EPA METHOD 6020: METALS							Analyst: **DBK**	
Arsenic	1.0	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Barium	320	9.6	19		mg/Kg	200	8/30/2021 2:12:14 PM	62063
Cadmium	ND	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Chromium	22	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Lead	16	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Selenium	2.1	0.55	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
Silver	ND	0.48	0.96		mg/Kg	10	8/27/2021 4:29:05 PM	62063
EPA METHOD 7471B: MERCURY							Analyst: **ags**	
Mercury	0.043	0.0028	0.036		mg/Kg	1	8/25/2021 1:01:53 PM	62144
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Acenaphthene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Acenaphthylene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Aniline	ND	0.68	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Anthracene	ND	0.88	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Azobenzene	ND	0.98	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benz(a)anthracene	ND	0.63	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(a)pyrene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(b)fluoranthene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(g,h,i)perylene	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzo(k)fluoranthene	ND	0.73	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzoic acid	ND	1.2	9.8	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Benzyl alcohol	ND	0.80	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-chloroethoxy)methane	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-chloroethyl)ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-chloroisopropyl)ether	ND	0.99	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Bis(2-ethylhexyl)phthalate	ND	2.1	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Bromophenyl phenyl ether	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Butyl benzyl phthalate	ND	0.59	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Carbazole	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Chloro-3-methylphenol	ND	0.82	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Chloroaniline	ND	0.95	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Chloronaphthalene	ND	0.93	2.4	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Chlorophenol	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Chlorophenyl phenyl ether	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Chrysene	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Di-n-butyl phthalate	ND	2.7	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Di-n-octyl phthalate	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Dibenz(a,h)anthracene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Dibenzofuran	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,2-Dichlorobenzene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,3-Dichlorobenzene	ND	0.70	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,4-Dichlorobenzene	ND	0.83	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
3,3´-Dichlorobenzidine	ND	1.5	2.4	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Diethyl phthalate	ND	3.2	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Dimethyl phthalate	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dichlorophenol	ND	0.79	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dimethylphenol	ND	0.69	2.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4,6-Dinitro-2-methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dinitrophenol	ND	0.49	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,6-Dinitrotoluene	ND	0.99	4.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Fluoranthene	ND	0.79	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Fluorene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachlorobenzene	ND	0.87	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachlorobutadiene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Hexachloroethane	ND	0.86	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Indeno(1,2,3-cd)pyrene	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Isophorone	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1-Methylnaphthalene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Methylnaphthalene	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Methylphenol	ND	0.82	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
3+4-Methylphenol	ND	0.81	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
N-Nitrosodi-n-propylamine	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
N-Nitrosodimethylamine	ND	1.5	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Naphthalene	ND	0.92	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Nitroaniline	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
3-Nitroaniline	ND	1.1	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Nitrobenzene	ND	0.80	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2-Nitrophenol	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
4-Nitrophenol	ND	0.80	2.4	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082

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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JME**	
Pentachlorophenol	ND	0.84	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Phenanthrene	ND	1.0	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Phenol	ND	0.75	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Pyrene	ND	0.74	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Pyridine	ND	1.6	3.9	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
1,2,4-Trichlorobenzene	ND	0.90	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4,5-Trichlorophenol	ND	0.62	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
2,4,6-Trichlorophenol	ND	0.84	2.0	D	mg/Kg	10	8/31/2021 7:15:05 PM	62082
Surr: 2-Fluorophenol	0		20.3-74.1	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: Phenol-d5	0		23.1-92.7	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: 2,4,6-Tribromophenol	0		17.3-122	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: Nitrobenzene-d5	0		24.7-73.2	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: 2-Fluorobiphenyl	0		21.5-90.1	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
Surr: 4-Terphenyl-d14	0		15-140	SD	%Rec	10	8/31/2021 7:15:05 PM	62082
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Benzene	ND	0.0059	0.015		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Toluene	0.0043	0.0039	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Ethylbenzene	ND	0.0075	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Methyl tert-butyl ether (MTBE)	ND	0.017	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,4-Trimethylbenzene	0.019	0.0043	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,3,5-Trimethylbenzene	ND	0.0069	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dichloroethane (EDC)	ND	0.0070	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dibromoethane (EDB)	ND	0.012	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Naphthalene	ND	0.011	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1-Methylnaphthalene	ND	0.035	0.12		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Methylnaphthalene	ND	0.028	0.12		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Acetone	ND	0.10	0.46		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromobenzene	ND	0.0065	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromodichloromethane	0.0053	0.0039	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromoform	ND	0.0074	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Bromomethane	ND	0.051	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Butanone	0.13	0.13	0.31	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Carbon disulfide	ND	0.013	0.31		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Carbon tetrachloride	ND	0.0034	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chlorobenzene	ND	0.0055	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chloroethane	ND	0.011	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chloroform	ND	0.0043	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Chloromethane	ND	0.011	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Chlorotoluene	ND	0.0041	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
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Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
4-Chlorotoluene	ND	0.016	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
cis-1,2-DCE	ND	0.015	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
cis-1,3-Dichloropropene	ND	0.0046	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dibromo-3-chloropropane	ND	0.013	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Dibromochloromethane	ND	0.0049	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Dibromomethane	ND	0.0072	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dichlorobenzene	ND	0.0064	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,3-Dichlorobenzene	ND	0.0058	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,4-Dichlorobenzene	ND	0.0082	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Dichlorodifluoromethane	ND	0.012	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1-Dichloroethane	ND	0.0089	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1-Dichloroethene	ND	0.0066	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2-Dichloropropane	ND	0.0060	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,3-Dichloropropane	ND	0.0067	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2,2-Dichloropropane	ND	0.0044	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1-Dichloropropene	ND	0.0037	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Hexachlorobutadiene	ND	0.021	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
2-Hexanone	0.031	0.013	0.31	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Isopropylbenzene	ND	0.0057	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
4-Isopropyltoluene	ND	0.0079	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
4-Methyl-2-pentanone	ND	0.036	0.31		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Methylene chloride	ND	0.022	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
n-Butylbenzene	ND	0.0082	0.092		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
n-Propylbenzene	ND	0.0049	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
sec-Butylbenzene	ND	0.025	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Styrene	ND	0.0042	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
tert-Butylbenzene	ND	0.0071	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,1,2-Tetrachloroethane	ND	0.0045	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,2,2-Tetrachloroethane	0.017	0.0099	0.031	J	mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Tetrachloroethene (PCE)	ND	0.0084	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
trans-1,2-DCE	ND	0.0059	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
trans-1,3-Dichloropropene	ND	0.0072	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,3-Trichlorobenzene	ND	0.0047	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,4-Trichlorobenzene	ND	0.011	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,1-Trichloroethane	ND	0.0068	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,1,2-Trichloroethane	ND	0.0077	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Trichloroethene (TCE)	ND	0.0060	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Trichlorofluoromethane	ND	0.0070	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
1,2,3-Trichloropropane	ND	0.013	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

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PQL	Practical Quanitative Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** RCR-BD6
Project: Railcar Release Investigation **Collection Date:** 8/12/2021
Lab ID: 2108721-056 **Matrix:** MEOH (SOIL) **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **RAA**	
Vinyl chloride	ND	0.0058	0.031		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Xylenes, Total	ND	0.016	0.061		mg/Kg	1	8/24/2021 5:32:42 AM	R80737
Surr: Dibromofluoromethane	98.1		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
Surr: Toluene-d8	102		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
Surr: 4-Bromofluorobenzene	115		70-130		%Rec	1	8/24/2021 5:32:42 AM	R80737
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: **RAA**	
Gasoline Range Organics (GRO)	1.2	0.85	3.1	J	mg/Kg	1	8/24/2021 5:32:42 AM	G80737
Surr: BFB	106	0	70-130		%Rec	1	8/24/2021 5:32:42 AM	G80737

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB1
Project: Railcar Release Investigation
Collection Date: 8/11/2021 12:00:00 PM
Lab ID: 2108721-057 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Acetone	42	2.5	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Butanone	30	2.0	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573

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Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB1
Project: Railcar Release Investigation
Collection Date: 8/11/2021 12:00:00 PM
Lab ID: 2108721-057 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
2-Hexanone	2.4	1.8	10	J	µg/L	1	8/18/2021 1:48:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 1:48:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 1:48:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 1:48:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	85.2	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573
Surr: 4-Bromofluorobenzene	96.8	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573
Surr: Dibromofluoromethane	87.0	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573
Surr: Toluene-d8	93.1	0	70-130		%Rec	1	8/18/2021 1:48:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB2
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:00:00 PM
Lab ID: 2108721-058 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Acetone	47	2.5	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Butanone	30	2.0	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB2
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:00:00 PM
Lab ID: 2108721-058 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
2-Hexanone	2.6	1.8	10	J	µg/L	1	8/18/2021 2:12:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 2:12:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 2:12:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 2:12:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	86.1	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573
Surr: 4-Bromofluorobenzene	97.1	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573
Surr: Dibromofluoromethane	87.1	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573
Surr: Toluene-d8	92.9	0	70-130		%Rec	1	8/18/2021 2:12:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB3
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:30:00 PM
Lab ID: 2108721-059 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Acetone	45	2.5	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Butanone	31	2.0	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB3
Project: Railcar Release Investigation
Collection Date: 8/11/2021 4:30:00 PM
Lab ID: 2108721-059 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
2-Hexanone	2.8	1.8	10	J	µg/L	1	8/18/2021 11:56:00 AM	R80607
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 11:56:00 AM	R80607
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 11:56:00 AM	R80607
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 11:56:00 AM	R80607
Surr: 1,2-Dichloroethane-d4	84.7	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607
Surr: 4-Bromofluorobenzene	94.9	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607
Surr: Dibromofluoromethane	87.0	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607
Surr: Toluene-d8	92.9	0	70-130		%Rec	1	8/18/2021 11:56:00 AM	R80607

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB4
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:05:00 AM
Lab ID: 2108721-060 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Acetone	37	2.5	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Butanone	24	2.0	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB4
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:05:00 AM
Lab ID: 2108721-060 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
2-Hexanone	2.2	1.8	10	J	µg/L	1	8/18/2021 2:58:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 2:58:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 2:58:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 2:58:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	84.6	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573
Surr: 4-Bromofluorobenzene	96.4	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573
Surr: Dibromofluoromethane	86.4	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573
Surr: Toluene-d8	93.0	0	70-130		%Rec	1	8/18/2021 2:58:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB5
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:35:00 AM
Lab ID: 2108721-061 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Acetone	38	2.5	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Butanone	25	2.0	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB5
Project: Railcar Release Investigation
Collection Date: 8/12/2021 8:35:00 AM
Lab ID: 2108721-061 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
2-Hexanone	2.2	1.8	10	J	µg/L	1	8/18/2021 3:21:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 3:21:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 3:21:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 3:21:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	85.7	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573
Surr: 4-Bromofluorobenzene	96.4	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573
Surr: Dibromofluoromethane	86.2	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573
Surr: Toluene-d8	93.8	0	70-130		%Rec	1	8/18/2021 3:21:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB6
Project: Railcar Release Investigation
Collection Date: 8/12/2021 9:35:00 AM
Lab ID: 2108721-062 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.23	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Toluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Ethylbenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Methyl tert-butyl ether (MTBE)	ND	0.39	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,4-Trimethylbenzene	ND	0.12	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,3,5-Trimethylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dichloroethane (EDC)	ND	0.25	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dibromoethane (EDB)	ND	0.30	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Naphthalene	ND	0.50	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1-Methylnaphthalene	ND	0.84	4.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Methylnaphthalene	ND	0.69	4.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Acetone	39	2.5	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromobenzene	ND	0.28	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromodichloromethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromoform	ND	0.31	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Bromomethane	ND	0.85	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Butanone	25	2.0	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Carbon disulfide	ND	0.59	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Carbon Tetrachloride	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chloroethane	ND	0.38	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chloroform	ND	0.13	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Chloromethane	ND	0.41	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Chlorotoluene	ND	0.13	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
4-Chlorotoluene	ND	0.34	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
cis-1,2-DCE	ND	0.39	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
cis-1,3-Dichloropropene	ND	0.36	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dibromo-3-chloropropane	ND	0.59	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Dibromochloromethane	ND	0.28	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Dibromomethane	ND	0.31	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dichlorobenzene	ND	0.15	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,3-Dichlorobenzene	ND	0.16	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,4-Dichlorobenzene	ND	0.21	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Dichlorodifluoromethane	ND	0.40	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1-Dichloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1-Dichloroethene	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2-Dichloropropane	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,3-Dichloropropane	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2,2-Dichloropropane	ND	0.26	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: RCR-EB6
Project: Railcar Release Investigation
Collection Date: 8/12/2021 9:35:00 AM
Lab ID: 2108721-062 **Matrix:** AQUEOUS **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,1-Dichloropropene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Hexachlorobutadiene	ND	0.56	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
2-Hexanone	2.3	1.8	10	J	µg/L	1	8/18/2021 3:44:00 AM	B80573
Isopropylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
4-Isopropyltoluene	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
4-Methyl-2-pentanone	ND	0.88	10		µg/L	1	8/18/2021 3:44:00 AM	B80573
Methylene Chloride	ND	0.50	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
n-Butylbenzene	ND	0.25	3.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
n-Propylbenzene	ND	0.18	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
sec-Butylbenzene	ND	0.14	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Styrene	ND	0.14	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
tert-Butylbenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,1,2-Tetrachloroethane	ND	0.27	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,2,2-Tetrachloroethane	ND	0.27	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Tetrachloroethene (PCE)	ND	0.36	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
trans-1,2-DCE	ND	0.19	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
trans-1,3-Dichloropropene	ND	0.34	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,3-Trichlorobenzene	ND	0.25	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,4-Trichlorobenzene	ND	0.24	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,1-Trichloroethane	ND	0.30	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,1,2-Trichloroethane	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Trichloroethene (TCE)	ND	0.20	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Trichlorofluoromethane	ND	0.16	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
1,2,3-Trichloropropane	ND	0.44	2.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Vinyl chloride	ND	0.32	1.0		µg/L	1	8/18/2021 3:44:00 AM	B80573
Xylenes, Total	ND	0.37	1.5		µg/L	1	8/18/2021 3:44:00 AM	B80573
Surr: 1,2-Dichloroethane-d4	85.3	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573
Surr: 4-Bromofluorobenzene	99.2	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573
Surr: Dibromofluoromethane	88.4	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573
Surr: Toluene-d8	93.4	0	70-130		%Rec	1	8/18/2021 3:44:00 AM	B80573

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 1
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-063 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0096	0.025		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Toluene	ND	0.0064	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Ethylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.028	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0071	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,3,5-Trimethylbenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Naphthalene	ND	0.019	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1-Methylnaphthalene	ND	0.057	0.20		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Acetone	ND	0.16	0.75		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
cis-1,3-Dichloropropene	ND	0.0074	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,3-Dichlorobenzene	ND	0.0094	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2-Dichloropropane	ND	0.0097	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 1
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-063 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1,1-Dichloropropene	ND	0.0060	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Isopropylbenzene	ND	0.0093	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
4-Isopropyltoluene	ND	0.013	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
4-Methyl-2-pentanone	ND	0.058	0.50		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
n-Propylbenzene	ND	0.0081	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
sec-Butylbenzene	ND	0.041	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0073	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0077	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Vinyl chloride	ND	0.0095	0.050		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Xylenes, Total	ND	0.026	0.10		mg/Kg	1	8/20/2021 5:56:35 AM	A80682
Surr: Dibromofluoromethane	105		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682
Surr: 1,2-Dichloroethane-d4	99.5		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682
Surr: Toluene-d8	104		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682
Surr: 4-Bromofluorobenzene	92.5		70-130		%Rec	1	8/20/2021 5:56:35 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 2
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-064 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0096	0.025		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Toluene	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Ethylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.028	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,3,5-Trimethylbenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Naphthalene	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1-Methylnaphthalene	ND	0.057	0.20		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Acetone	ND	0.16	0.75		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
cis-1,3-Dichloropropene	ND	0.0074	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,3-Dichlorobenzene	ND	0.0094	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2-Dichloropropane	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 2
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-064 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1,1-Dichloropropene	ND	0.0060	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Isopropylbenzene	ND	0.0093	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
4-Isopropyltoluene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
4-Methyl-2-pentanone	ND	0.058	0.50		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
n-Propylbenzene	ND	0.0081	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
sec-Butylbenzene	ND	0.041	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0073	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0077	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Vinyl chloride	ND	0.0095	0.050		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Xylenes, Total	ND	0.026	0.10		mg/Kg	1	8/20/2021 6:25:14 AM	A80682
Surr: Dibromofluoromethane	107		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682
Surr: 1,2-Dichloroethane-d4	97.7		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682
Surr: Toluene-d8	105		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682
Surr: 4-Bromofluorobenzene	92.4		70-130		%Rec	1	8/20/2021 6:25:14 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 3
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-065 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.0096	0.025		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Toluene	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Ethylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Methyl tert-butyl ether (MTBE)	ND	0.028	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,4-Trimethylbenzene	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,3,5-Trimethylbenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dichloroethane (EDC)	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dibromoethane (EDB)	ND	0.020	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Naphthalene	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1-Methylnaphthalene	ND	0.057	0.20		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Methylnaphthalene	ND	0.046	0.20		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Acetone	ND	0.16	0.75		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromobenzene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromodichloromethane	ND	0.0064	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromoform	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Bromomethane	ND	0.083	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Butanone	ND	0.22	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Carbon disulfide	ND	0.021	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Carbon tetrachloride	ND	0.0056	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chlorobenzene	ND	0.0090	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chloroethane	ND	0.019	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chloroform	ND	0.0071	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Chloromethane	ND	0.018	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Chlorotoluene	ND	0.0067	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
4-Chlorotoluene	ND	0.026	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
cis-1,2-DCE	ND	0.025	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
cis-1,3-Dichloropropene	ND	0.0074	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dibromo-3-chloropropane	ND	0.022	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Dibromochloromethane	ND	0.0080	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Dibromomethane	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dichlorobenzene	ND	0.010	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,3-Dichlorobenzene	ND	0.0094	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,4-Dichlorobenzene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Dichlorodifluoromethane	ND	0.019	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1-Dichloroethane	ND	0.015	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1-Dichloroethene	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2-Dichloropropane	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,3-Dichloropropane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2,2-Dichloropropane	ND	0.0071	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report
Lab Order **2108721**
Date Reported: **9/13/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon **Client Sample ID:** MeOH Blank 3
Project: Railcar Release Investigation **Collection Date:**
Lab ID: 2108721-065 **Matrix:** MEOH BLAN **Received Date:** 8/13/2021 3:37:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1,1-Dichloropropene	ND	0.0060	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Hexachlorobutadiene	ND	0.034	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
2-Hexanone	ND	0.022	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Isopropylbenzene	ND	0.0093	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
4-Isopropyltoluene	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
4-Methyl-2-pentanone	ND	0.058	0.50		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Methylene chloride	ND	0.036	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
n-Butylbenzene	ND	0.013	0.15		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
n-Propylbenzene	ND	0.0081	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
sec-Butylbenzene	ND	0.041	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Styrene	ND	0.0068	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
tert-Butylbenzene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,1,2-Tetrachloroethane	ND	0.0073	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,2,2-Tetrachloroethane	ND	0.016	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Tetrachloroethene (PCE)	ND	0.014	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
trans-1,2-DCE	ND	0.0097	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
trans-1,3-Dichloropropene	ND	0.012	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,3-Trichlorobenzene	ND	0.0077	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,4-Trichlorobenzene	ND	0.017	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,1-Trichloroethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,1,2-Trichloroethane	ND	0.013	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Trichloroethene (TCE)	ND	0.0098	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Trichlorofluoromethane	ND	0.011	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
1,2,3-Trichloropropane	ND	0.021	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Vinyl chloride	ND	0.0095	0.050		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Xylenes, Total	ND	0.026	0.10		mg/Kg	1	8/20/2021 6:53:56 AM	A80682
Surr: Dibromofluoromethane	103		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682
Surr: 1,2-Dichloroethane-d4	98.5		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682
Surr: Toluene-d8	107		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682
Surr: 4-Bromofluorobenzene	92.0		70-130		%Rec	1	8/20/2021 6:53:56 AM	A80682

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Hall Environmental Analysis Lab	Work Order:	MBH0767
Address:	4901 Hawkins NE Suite D	Project:	2108721
	Albuquerque, NM 87109	Reported:	9/10/2021 09:17
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2108721-001A (RCR-SB1 (0'))		
Lab/Sample Number:	MBH0767-01	Collect Date:	08/11/21 10:00
Date Received:	08/19/21 11:03	Collected By:	
Matrix:	Solid		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.5	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0467	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0231	8/27/21 19:31	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*67.6%*		*40-130*	*8/27/21 19:31*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-002A (RCR-SB1 (2.5'))
Lab/Sample Number: MBH0767-02 Collect Date: 08/11/21 10:05
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.4	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0768	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Acenaphthene	0.0361	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Acenaphthylene	0.0394	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Anthracene	0.0678	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.286	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[a]anthracene	0.0896	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[a]pyrene	0.156	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.298	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0463	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Chrysene	0.911	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0803	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Fluoranthene	0.150	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0776	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Phenanthrene	0.0337	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Pyrene	0.788	mg/kg dry	0.0252	8/30/21 17:45	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*72.1%*		*40-130*	*8/30/21 17:45*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-003A (RCR-SB1 (4'))
Lab/Sample Number: MBH0767-03 Collect Date: 08/11/21 10:10
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	82.5	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	1.59	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Acenaphthene	0.124	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Acenaphthylene	0.0452	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Anthracene	0.0264	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[a]anthracene	0.0444	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0154	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Chrysene	0.0855	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Fluoranthene	0.0213	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Fluorene	0.271	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Naphthalene	0.0425	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Phenanthrene	0.514	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Pyrene	0.111	mg/kg dry	0.0121	8/27/21 19:07	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*58.0%*		*40-130*	*8/27/21 19:07*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-004A (RCR-SB1 (5'))
Lab/Sample Number: MBH0767-04 Collect Date: 08/11/21 10:12
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.7	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.111	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Fluorene	0.0342	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Naphthalene	0.0190	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Phenanthrene	0.102	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0122	8/27/21 14:25	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*87.1%*		*40-130*	*8/27/21 14:25*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-005A (RCR-SB1 (7.5'))
Lab/Sample Number: MBH0767-05 Collect Date: 08/11/21 10:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.386	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
2-Methylnaphthalene	0.0614	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Acenaphthene	0.0497	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Acenaphthylene	0.0450	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Anthracene	0.0345	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[a]anthracene	0.0182	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Chrysene	0.0500	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Fluorene	0.279	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Naphthalene	0.0318	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Phenanthrene	0.537	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Pyrene	0.0765	mg/kg dry	0.0124	8/27/21 14:49	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.4%*		*40-130*	*8/27/21 14:49*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-006A (RCR-SB1 (8'))
Lab/Sample Number: MBH0767-06 Collect Date: 08/11/21 10:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.8	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0890	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
2-Methylnaphthalene	0.0355	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Acenaphthene	0.0139	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Acenaphthylene	0.0128	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Fluorene	0.0636	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Phenanthrene	0.162	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Pyrene	0.0190	mg/kg dry	0.0125	8/27/21 15:12	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*74.9%*		*40-130*	*8/27/21 15:12*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-007A (RCR-SB2 (0'))
Lab/Sample Number: MBH0767-07 Collect Date: 08/11/21 11:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	89.4	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0575	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Pyrene	0.0281	mg/kg dry	0.0224	8/27/21 19:54	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*67.9%*		*40-130*	*8/27/21 19:54*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-008A (RCR-SB2 (2'))
Lab/Sample Number: MBH0767-08 Collect Date: 08/11/21 11:35
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.0	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	4.24	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Acenaphthene	1.73	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Acenaphthylene	0.342	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Anthracene	0.417	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[a]anthracene	0.689	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.357	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Chrysene	1.69	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Fluoranthene	0.458	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Fluorene	2.07	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Naphthalene	0.441	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Phenanthrene	3.41	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Pyrene	2.05	mg/kg dry	0.263	8/30/21 18:56	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*71.9%*		*40-130*	*8/30/21 18:56*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-009A (RCR-SB2 (2.5'))
Lab/Sample Number: MBH0767-09 Collect Date: 08/11/21 11:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.1	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.268	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
2-Methylnaphthalene	0.0545	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Acenaphthene	0.0364	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0459	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[a]anthracene	0.0489	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Fluorene	0.0618	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Naphthalene	0.0545	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Phenanthrene	0.177	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Pyrene	0.0546	mg/kg dry	0.0253	8/27/21 22:39	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*69.6%*		*40-130*	*8/27/21 22:39*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-010A (RCR-SB2 (5'))
Lab/Sample Number: MBH0767-10 Collect Date: 08/11/21 11:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0124	8/27/21 15:36	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*79.3%*		*40-130*	*8/27/21 15:36*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108721-011A (RCR-SB2 (7.5'))
Lab/Sample Number: MBH0767-11 Collect Date: 08/11/21 11:50
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	78.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0127	8/27/21 17:33	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*76.9%*		*40-130*	*8/27/21 17:33*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-012A (RCR-SB2 (8'))
Lab/Sample Number: MBH0767-12 Collect Date: 08/11/21 11:55
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.2	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/27/21 17:57	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*80.2%*		*40-130*	*8/27/21 17:57*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-013A (RCR-SB3 (0'))
Lab/Sample Number: MBH0767-13 Collect Date: 08/11/21 12:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	90.0	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.240	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0395	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Chrysene	0.0275	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0419	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0604	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Naphthalene	0.0321	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0222	8/30/21 18:09	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*76.6%*		*40-130*	*8/30/21 18:09*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-014A (RCR-SB3 (2.5'))
Lab/Sample Number: MBH0767-14 Collect Date: 08/11/21 12:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	88.1	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0301	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
2-Methylnaphthalene	0.0287	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0260	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0227	8/27/21 20:18	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.5%*		*40-130*	*8/27/21 20:18*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-016A (RCR-SB3 (7.5'))
Lab/Sample Number: MBH0767-15 Collect Date: 08/11/21 12:55
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.6	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0458	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
2-Methylnaphthalene	0.0138	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Phenanthrene	0.0126	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0115	8/27/21 18:20	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*69.4%*		*40-130*	*8/27/21 18:20*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-017A (RCR-SB3 (8'))
Lab/Sample Number: MBH0767-16 Collect Date: 08/11/21 13:00
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	87.2	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0216	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Phenanthrene	0.0120	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0115	8/27/21 18:44	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*69.1%*		*40-130*	*8/27/21 18:44*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-018A (RCR-SB4 (0'))
Lab/Sample Number: MBH0767-17 Collect Date: 08/11/21 14:00
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	94.1	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	8.95	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
2-Methylnaphthalene	11.3	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Acenaphthene	0.438	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Acenaphthylene	0.160	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[a]anthracene	0.281	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.123	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Chrysene	0.373	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Fluorene	0.717	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Naphthalene	1.98	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Phenanthrene	1.47	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Pyrene	0.367	mg/kg dry	0.106	8/30/21 18:32	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*80.7%*		*40-130*	*8/30/21 18:32*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-019A (RCR-SB4 (2'))
Lab/Sample Number: MBH0767-18 Collect Date: 08/11/21 14:03
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	88.9	%	0.100	8/23/21 12:00	JM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	1.90	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
2-Methylnaphthalene	2.88	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Acenaphthene	0.124	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Acenaphthylene	0.0362	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Chrysene	0.0276	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Fluorene	0.191	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Naphthalene	0.261	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Phenanthrene	0.310	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Pyrene	0.0493	mg/kg dry	0.0225	8/27/21 22:15	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*77.3%*		*40-130*	*8/27/21 22:15*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-020A (RCR-SB4 (2.5'))
Lab/Sample Number: MBH0767-19 Collect Date: 08/11/21 14:05
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.2	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.112	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
2-Methylnaphthalene	0.173	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[a]anthracene	0.0317	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Chrysene	0.0318	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Naphthalene	0.0346	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Phenanthrene	0.0768	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Pyrene	0.0539	mg/kg dry	0.0232	9/1/21 0:51	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*56.0%*		*40-130*	*9/1/21 0:51*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-021A (RCR-SB4 (5'))
Lab/Sample Number: MBH0767-20 Collect Date: 08/11/21 07:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.1	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 21:10	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*74.0%*		*40-130*	*8/31/21 21:10*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-022A (RCR-SB4 (7.5'))
Lab/Sample Number: MBH0767-21 Collect Date: 08/11/21 14:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.4	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 21:32	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*63.5%*		*40-130*	*8/31/21 21:32*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-023A (RCR-SB4 (8'))
Lab/Sample Number: MBH0767-22 Collect Date: 08/11/21 14:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	83.0	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0120	8/31/21 21:54	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*50.8%*		*40-130*	*8/31/21 21:54*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-024A (RCR-SB5 (0'))
Lab/Sample Number: MBH0767-23 Collect Date: 08/11/21 15:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	93.9	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0268	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0213	9/1/21 1:13	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.0%*		*40-130*	*9/1/21 1:13*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-025A (RCR-SB5 (2.5'))
Lab/Sample Number: MBH0767-24 Collect Date: 08/11/21 15:35
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	91.3	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
2-Methylnaphthalene	0.0243	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.215	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[a]anthracene	0.0756	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[a]pyrene	0.330	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.217	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Chrysene	0.278	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0775	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0727	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Naphthalene	0.0652	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Pyrene	0.0895	mg/kg dry	0.0219	9/1/21 3:24	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.7%*		*40-130*	*9/1/21 3:24*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-026A (RCR-SB5 (4'))
Lab/Sample Number: MBH0767-25 Collect Date: 08/11/21 15:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	78.4	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Chrysene	0.0441	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Pyrene	0.0345	mg/kg dry	0.0128	8/31/21 22:16	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*44.5%*		*40-130*	*8/31/21 22:16*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-027A (RCR-SB5 (5'))
Lab/Sample Number: MBH0767-26 Collect Date: 08/11/21 15:42
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	84.9	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0222	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
2-Methylnaphthalene	0.0406	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0766	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[a]anthracene	0.0959	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[a]pyrene	0.0908	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.109	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0160	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Chrysene	0.302	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0432	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Fluoranthene	0.0128	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0302	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Naphthalene	0.0337	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Pyrene	0.362	mg/kg dry	0.0118	9/1/21 1:34	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*46.4%*		*40-130*	*9/1/21 1:34*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-028A (RCR-SB5 (7.5'))
Lab/Sample Number: MBH0767-27 Collect Date: 08/11/21 15:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.5	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.237	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
2-Methylnaphthalene	0.407	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Chrysene	0.0171	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Fluorene	0.0154	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Naphthalene	0.234	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Phenanthrene	0.0352	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 22:38	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*63.3%*		*40-130*	*8/31/21 22:38*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-029A (RCR-SB5 (8'))
Lab/Sample Number: MBH0767-28 Collect Date: 08/11/21 15:50
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.0	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.736	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
2-Methylnaphthalene	1.33	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Acenaphthene	0.0211	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Acenaphthylene	0.0123	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Fluorene	0.0794	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Naphthalene	0.561	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Phenanthrene	0.162	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Pyrene	0.0286	mg/kg dry	0.0123	8/31/21 23:00	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*56.3%*		*40-130*	*8/31/21 23:00*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-031A (RCR-SB6 (2.5'))
Lab/Sample Number: MBH0767-29 Collect Date: 08/11/21 16:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	83.0	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	30.7	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
2-Methylnaphthalene	52.2	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Acenaphthene	0.358	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Acenaphthylene	0.312	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[a]anthracene	0.918	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[a]pyrene	0.578	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.463	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Chrysene	2.38	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Fluoranthene	0.462	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Fluorene	1.84	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Naphthalene	17.5	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Phenanthrene	4.66	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Pyrene	2.44	mg/kg dry	0.241	9/1/21 13:23	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.0%*		*40-130*	*9/1/21 13:23*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-032A (RCR-SB6 (3'))
Lab/Sample Number: MBH0767-30 Collect Date: 08/11/21 16:25
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.1	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	43.1	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
2-Methylnaphthalene	68.0	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Acenaphthene	0.945	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Acenaphthylene	0.538	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Anthracene	0.340	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[a]anthracene	0.960	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[a]pyrene	0.549	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.314	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Chrysene	2.12	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Fluoranthene	0.464	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Fluorene	3.54	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Naphthalene	26.6	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Phenanthrene	8.20	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Pyrene	2.47	mg/kg dry	0.247	9/1/21 13:45	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*59.9%*		*40-130*	*9/1/21 13:45*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-033A (RCR-SS1 (0.5'))
Lab/Sample Number: MBH0767-31 Collect Date: 08/12/21 08:00
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.7	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.104	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
2-Methylnaphthalene	0.153	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Naphthalene	0.0821	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Phenanthrene	0.0273	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Pyrene	0.0180	mg/kg dry	0.0130	8/31/21 23:22	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*46.4%*		*40-130*	*8/31/21 23:22*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-034A (RCR-SS1 (1'))
Lab/Sample Number: MBH0767-32 Collect Date: 08/12/21 08:05
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.2	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0126	8/31/21 23:44	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*49.5%*		*40-130*	*8/31/21 23:44*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-035A (RCR-SS2 (0.5'))
Lab/Sample Number: MBH0767-33 Collect Date: 08/12/21 08:10
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	78.3	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.604	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
2-Methylnaphthalene	0.421	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Acenaphthene	0.0189	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Acenaphthylene	0.0188	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0221	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[a]anthracene	0.0341	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[a]pyrene	0.0176	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0254	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Chrysene	0.102	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Fluoranthene	0.0147	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Fluorene	0.0728	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Naphthalene	0.217	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Phenanthrene	0.0284	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Pyrene	0.177	mg/kg dry	0.0128	9/1/21 0:06	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*54.8%*		*40-130*	*9/1/21 0:06*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-036A (RCR-SS2 (1'))
Lab/Sample Number: MBH0767-34 Collect Date: 08/12/21 08:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	75.9	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	6.56	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
2-Methylnaphthalene	6.91	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Acenaphthylene	0.0983	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Chrysene	0.0880	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Fluorene	0.475	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Naphthalene	1.27	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Phenanthrene	0.384	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Pyrene	0.127	mg/kg dry	0.0263	9/1/21 0:28	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*49.4%*		*40-130*	*9/1/21 0:28*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-037A (RCR-SS3 (0.5'))
Lab/Sample Number: MBH0767-35 Collect Date: 08/12/21 08:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.3	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	11.2	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
2-Methylnaphthalene	16.5	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Acenaphthene	0.548	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Chrysene	0.731	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Fluorene	2.00	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Naphthalene	5.50	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Phenanthrene	3.71	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Pyrene	1.61	mg/kg dry	0.498	9/1/21 14:07	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*64.5%*		*40-130*	*9/1/21 14:07*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-038A (RCR-SS3 (1'))
Lab/Sample Number: MBH0767-36 Collect Date: 08/12/21 08:20 - 08/12/21 08:25
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	75.4	%	0.100	8/24/21 15:00	BMM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	18.2	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
2-Methylnaphthalene	32.0	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Acenaphthene	0.613	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Acenaphthylene	0.280	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Chrysene	0.574	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Fluorene	1.84	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Naphthalene	15.0	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Phenanthrene	3.74	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Pyrene	1.31	mg/kg dry	0.265	9/1/21 14:29	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*60.6%*		*40-130*	*9/1/21 14:29*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-039A (RCR-SS4 (0.5'))
Lab/Sample Number: MBH0767-37 Collect Date: 08/12/21 08:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	70.6	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	2.90	mg/kg dry	0.142	9/2/21 17:46	TGT	EPA 8270D	
2-Methylnaphthalene	2.88	mg/kg dry	0.142	9/2/21 17:46	TGT	EPA 8270D	
Acenaphthene	0.225	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Acenaphthylene	0.104	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Anthracene	0.0568	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0781	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[a]anthracene	0.111	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[a]pyrene	0.0346	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0667	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Chrysene	0.413	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0343	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Fluoranthene	0.0577	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Fluorene	0.638	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0230	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Naphthalene	0.915	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Phenanthrene	0.802	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Pyrene	0.341	mg/kg dry	0.0142	9/2/21 17:46	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*52.4%*		*40-130*	*9/2/21 17:46*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-040A (RCR-SS4 (1'))
Lab/Sample Number: MBH0767-38 Collect Date: 08/12/21 08:35
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	81.2	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	2.29	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
2-Methylnaphthalene	3.47	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Acenaphthene	0.139	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Acenaphthylene	0.0490	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Anthracene	0.0493	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Chrysene	0.0176	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Fluoranthene	0.0175	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Fluorene	0.280	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Naphthalene	0.610	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Phenanthrene	0.514	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Pyrene	0.0564	mg/kg dry	0.0123	9/2/21 15:25	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.5%*		*40-130*	*9/2/21 15:25*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-041A (RCR-SS5 (0.5'))
Lab/Sample Number: MBH0767-39 Collect Date: 08/12/21 08:40
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	87.8	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.475	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
2-Methylnaphthalene	0.129	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Acenaphthene	0.0502	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Acenaphthylene	0.0275	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Anthracene	0.0340	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0759	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[a]anthracene	0.182	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[a]pyrene	0.0841	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0639	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0121	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Chrysene	0.427	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0260	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Fluoranthene	0.101	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Fluorene	0.143	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0229	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Naphthalene	0.0461	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Phenanthrene	0.136	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Pyrene	0.870	mg/kg dry	0.0114	9/2/21 18:10	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*53.1%*		*40-130*	*9/2/21 18:10*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-042A (RCR-SS5 (1'))
Lab/Sample Number: MBH0767-40 Collect Date: 08/12/21 08:45
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	85.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	1.01	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
2-Methylnaphthalene	0.553	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Acenaphthene	0.138	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Acenaphthylene	0.0426	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Anthracene	0.0894	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.231	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[a]anthracene	0.395	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[a]pyrene	0.307	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.212	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.0370	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Chrysene	1.21	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0860	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Fluoranthene	0.170	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Fluorene	0.250	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0683	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Naphthalene	0.178	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Phenanthrene	0.479	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Pyrene	1.68	mg/kg dry	0.0117	9/2/21 18:34	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*51.9%*		*40-130*	*9/2/21 18:34*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-043A (RCR-SS6 (0.5'))
Lab/Sample Number: MBH0767-41 Collect Date: 08/12/21 08:50
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	77.9	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Chrysene	0.0198	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Pyrene	0.0305	mg/kg dry	0.0128	9/2/21 15:49	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.4%*		*40-130*	*9/2/21 15:49*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108721-044A (RCR-SS6 (1'))
Lab/Sample Number: MBH0767-42 Collect Date: 08/12/21 08:55
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.4	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0446	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
2-Methylnaphthalene	0.0192	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Fluorene	0.0285	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Naphthalene	0.0181	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Phenanthrene	0.0547	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0124	9/2/21 16:12	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*66.1%*		*40-130*	*9/2/21 16:12*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-045A (RCR-SS7 (0.5'))
Lab/Sample Number: MBH0767-43 Collect Date: 08/12/21 09:10
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	85.4	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.102	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Chrysene	0.0203	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0167	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Pyrene	0.0160	mg/kg dry	0.0117	9/2/21 18:57	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*58.9%*		*40-130*	*9/2/21 18:57*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-046A (RCR-SS7 (1'))
Lab/Sample Number: MBH0767-44 Collect Date: 08/12/21 09:15
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	84.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0287	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0119	9/2/21 19:21	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.9%*		*40-130*	*9/2/21 19:21*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-047A (RCR-SS8 (0.5'))
Lab/Sample Number: MBH0767-45 Collect Date: 08/12/21 09:20
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	72.4	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Anthracene	0.0181	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.115	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.0169	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Chrysene	0.0269	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0144	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0266	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Pyrene	0.0229	mg/kg dry	0.0138	9/2/21 19:44	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*47.9%*		*40-130*	*9/2/21 19:44*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2108721-048A (RCR-SS8 (1'))
Lab/Sample Number: MBH0767-46 Collect Date: 08/12/21 09:25
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	82.7	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0620	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Chrysene	0.0145	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0145	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0217	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Pyrene	0.0124	mg/kg dry	0.0121	9/2/21 20:08	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*57.2%*		*40-130*	*9/2/21 20:08*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2108721-049A (RCR-SS9 (0.5'))
Lab/Sample Number: MBH0767-47 Collect Date: 08/12/21 09:30
Date Received: 08/19/21 11:03 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	91.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0730	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Chrysene	0.0199	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0146	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Pyrene	0.0156	mg/kg dry	0.0110	9/2/21 20:31	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*48.9%*		*40-130*	*9/2/21 20:31*	*TGT*	*EPA 8270D*	

Authorized Signature,



Justin Doty For Todd Taruscio, Laboratory Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

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Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0680 - ASE Ext										
Blank (BBH0680-BLK1)				Prepared: 8/20/2021 Analyzed: 8/27/2021						
Naphthalene	ND		0.0100	mg/kg wet						
2-Methylnaphthalene	ND		0.0100	mg/kg wet						
1-Methylnaphthalene	ND		0.0100	mg/kg wet						
Acenaphthylene	ND		0.0100	mg/kg wet						
Acenaphthene	ND		0.0100	mg/kg wet						
Fluorene	ND		0.0100	mg/kg wet						
Phenanthrene	ND		0.0100	mg/kg wet						
Anthracene	ND		0.0100	mg/kg wet						
Fluoranthene	ND		0.0100	mg/kg wet						
Pyrene	ND		0.0100	mg/kg wet						
Benzo[a]anthracene	ND		0.0100	mg/kg wet						
Chrysene	ND		0.0100	mg/kg wet						
Benzo[b]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[k]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[a]pyrene	ND		0.0100	mg/kg wet						
Indeno(1,2,3-cd)pyrene	ND		0.0100	mg/kg wet						
Dibenz(a,h)anthracene	ND		0.0100	mg/kg wet						
Benzo(g,h,i)perylene	ND		0.0100	mg/kg wet						
Surrogate: Terphenyl-d14			*4.26*	*mg/kg wet*	*5.15*		*82.7*	*40-130*		
LCS (BBH0680-BS1)				Prepared: 8/20/2021 Analyzed: 8/28/2021						
Naphthalene	0.443		0.0100	mg/kg wet	0.500		88.6	32-133		
2-Methylnaphthalene	0.503		0.0100	mg/kg wet	0.500		101	45-138		
1-Methylnaphthalene	0.514		0.0100	mg/kg wet	0.500		103	47-135		
Acenaphthylene	0.602		0.0100	mg/kg wet	0.500		120	48-136		
Acenaphthene	0.475		0.0100	mg/kg wet	0.500		95.1	52-127		
Fluorene	0.539		0.0100	mg/kg wet	0.500		108	56-126		
Phenanthrene	0.456		0.0100	mg/kg wet	0.500		91.2	69-127		
Anthracene	0.496		0.0100	mg/kg wet	0.500		99.1	32-141		
Fluoranthene	0.459		0.0100	mg/kg wet	0.500		91.7	45-130		
Pyrene	0.458		0.0100	mg/kg wet	0.500		91.6	71-141		
Benzo[a]anthracene	0.469		0.0100	mg/kg wet	0.500		93.9	47-139		
Chrysene	0.457		0.0100	mg/kg wet	0.500		91.4	36-133		
Benzo[b]fluoranthene	0.528		0.0100	mg/kg wet	0.500		106	48-177		
Benzo[k]fluoranthene	0.482		0.0100	mg/kg wet	0.500		96.4	47-169		
Benzo[a]pyrene	0.471		0.0100	mg/kg wet	0.500		94.3	51-155		
Indeno(1,2,3-cd)pyrene	0.530		0.0100	mg/kg wet	0.500		106	66-166		
Dibenz(a,h)anthracene	0.531		0.0100	mg/kg wet	0.500		106	57-155		
Benzo(g,h,i)perylene	0.491		0.0100	mg/kg wet	0.500		98.2	49-165		
Surrogate: Terphenyl-d14			*4.17*	*mg/kg wet*	*5.15*		*81.1*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0680 - ASE Ext (Continued)										
LCS Dup (BBH0680-BSD1)				Prepared: 8/20/2021 Analyzed: 8/28/2021						
Naphthalene	0.444		0.0100	mg/kg wet	0.500		88.8	32-133	0.247	50
2-Methylnaphthalene	0.510		0.0100	mg/kg wet	0.500		102	45-138	1.56	50
1-Methylnaphthalene	0.508		0.0100	mg/kg wet	0.500		102	47-135	1.16	50
Acenaphthylene	0.549		0.0100	mg/kg wet	0.500		110	48-136	9.23	50
Acenaphthene	0.470		0.0100	mg/kg wet	0.500		93.9	52-127	1.18	50
Fluorene	0.530		0.0100	mg/kg wet	0.500		106	56-126	1.81	50
Phenanthrene	0.458		0.0100	mg/kg wet	0.500		91.5	69-127	0.406	50
Anthracene	0.472		0.0100	mg/kg wet	0.500		94.3	32-141	4.99	50
Fluoranthene	0.456		0.0100	mg/kg wet	0.500		91.2	45-130	0.560	50
Pyrene	0.457		0.0100	mg/kg wet	0.500		91.5	71-141	0.159	50
Benzo[a]anthracene	0.472		0.0100	mg/kg wet	0.500		94.3	47-139	0.462	50
Chrysene	0.456		0.0100	mg/kg wet	0.500		91.2	36-133	0.189	50
Benzo[b]fluoranthene	0.467		0.0100	mg/kg wet	0.500		93.4	48-177	12.3	50
Benzo[k]fluoranthene	0.467		0.0100	mg/kg wet	0.500		93.4	47-169	3.09	50
Benzo[a]pyrene	0.462		0.0100	mg/kg wet	0.500		92.5	51-155	1.97	50
Indeno(1,2,3-cd)pyrene	0.479		0.0100	mg/kg wet	0.500		95.8	66-166	10.1	50
Dibenz(a,h)anthracene	0.483		0.0100	mg/kg wet	0.500		96.5	57-155	9.46	50
Benzo(g,h,i)perylene	0.441		0.0100	mg/kg wet	0.500		88.2	49-165	10.7	50
Surrogate: Terphenyl-d14			*4.22*	*mg/kg wet*	*5.15*		*82.0*	*40-130*		
Batch: BBH0741 - SVOC Solid										
Blank (BBH0741-BLK1)				Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	ND		0.0100	mg/kg wet						
2-Methylnaphthalene	ND		0.0100	mg/kg wet						
1-Methylnaphthalene	ND		0.0100	mg/kg wet						
Acenaphthylene	ND		0.0100	mg/kg wet						
Acenaphthene	ND		0.0100	mg/kg wet						
Fluorene	ND		0.0100	mg/kg wet						
Phenanthrene	ND		0.0100	mg/kg wet						
Anthracene	ND		0.0100	mg/kg wet						
Fluoranthene	ND		0.0100	mg/kg wet						
Pyrene	ND		0.0100	mg/kg wet						
Benzo[a]anthracene	ND		0.0100	mg/kg wet						
Chrysene	ND		0.0100	mg/kg wet						
Benzo[b]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[k]fluoranthene	ND		0.0100	mg/kg wet						
Benzo[a]pyrene	ND		0.0100	mg/kg wet						
Indeno(1,2,3-cd)pyrene	ND		0.0100	mg/kg wet						
Dibenz(a,h)anthracene	ND		0.0100	mg/kg wet						
Benzo(g,h,i)perylene	ND		0.0100	mg/kg wet						
Surrogate: Terphenyl-d14			*3.72*	*mg/kg wet*	*5.15*		*72.2*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0741 - SVOC Solid (Continued)										
LCS (BBH0741-BS1)				Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.353		0.0100	mg/kg wet	0.500		70.6	32-133		
2-Methylnaphthalene	0.400		0.0100	mg/kg wet	0.500		80.1	45-138		
1-Methylnaphthalene	0.377		0.0100	mg/kg wet	0.500		75.5	47-135		
Acenaphthylene	0.509		0.0100	mg/kg wet	0.500		102	48-136		
Acenaphthene	0.394		0.0100	mg/kg wet	0.500		78.7	52-127		
Fluorene	0.475		0.0100	mg/kg wet	0.500		94.9	56-126		
Phenanthrene	0.399		0.0100	mg/kg wet	0.500		79.8	69-127		
Anthracene	0.439		0.0100	mg/kg wet	0.500		87.9	32-141		
Fluoranthene	0.433		0.0100	mg/kg wet	0.500		86.6	45-130		
Pyrene	0.409		0.0100	mg/kg wet	0.500		81.9	71-141		
Benzo[a]anthracene	0.404		0.0100	mg/kg wet	0.500		80.8	47-139		
Chrysene	0.412		0.0100	mg/kg wet	0.500		82.3	36-133		
Benzo[b]fluoranthene	0.442		0.0100	mg/kg wet	0.500		88.5	48-177		
Benzo[k]fluoranthene	0.385		0.0100	mg/kg wet	0.500		77.0	47-169		
Benzo[a]pyrene	0.416		0.0100	mg/kg wet	0.500		83.2	51-155		
Indeno(1,2,3-cd)pyrene	0.444		0.0100	mg/kg wet	0.500		88.9	66-166		
Dibenz(a,h)anthracene	0.466		0.0100	mg/kg wet	0.500		93.2	57-155		
Benzo(g,h,i)perylene	0.444		0.0100	mg/kg wet	0.500		88.8	49-165		
Surrogate: Terphenyl-d14			*3.42*	*mg/kg wet*	*5.15*		*66.4*	*40-130*		
LCS Dup (BBH0741-BSD1)				Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.422		0.0100	mg/kg wet	0.500		84.4	32-133	17.8	50
2-Methylnaphthalene	0.573		0.0100	mg/kg wet	0.500		115	45-138	35.5	50
1-Methylnaphthalene	0.505		0.0100	mg/kg wet	0.500		101	47-135	28.9	50
Acenaphthylene	0.516		0.0100	mg/kg wet	0.500		103	48-136	1.26	50
Acenaphthene	0.406		0.0100	mg/kg wet	0.500		81.2	52-127	3.04	50
Fluorene	0.515		0.0100	mg/kg wet	0.500		103	56-126	8.18	50
Phenanthrene	0.459		0.0100	mg/kg wet	0.500		91.8	69-127	14.0	50
Anthracene	0.457		0.0100	mg/kg wet	0.500		91.4	32-141	3.98	50
Fluoranthene	0.473		0.0100	mg/kg wet	0.500		94.6	45-130	8.86	50
Pyrene	0.452		0.0100	mg/kg wet	0.500		90.4	71-141	9.85	50
Benzo[a]anthracene	0.413		0.0100	mg/kg wet	0.500		82.6	47-139	2.21	50
Chrysene	0.418		0.0100	mg/kg wet	0.500		83.6	36-133	1.49	50
Benzo[b]fluoranthene	0.463		0.0100	mg/kg wet	0.500		92.6	48-177	4.62	50
Benzo[k]fluoranthene	0.396		0.0100	mg/kg wet	0.500		79.1	47-169	2.67	50
Benzo[a]pyrene	0.381		0.0100	mg/kg wet	0.500		76.1	51-155	8.89	50
Indeno(1,2,3-cd)pyrene	0.425		0.0100	mg/kg wet	0.500		84.9	66-166	4.52	50
Dibenz(a,h)anthracene	0.454		0.0100	mg/kg wet	0.500		90.8	57-155	2.70	50
Benzo(g,h,i)perylene	0.421		0.0100	mg/kg wet	0.500		84.1	49-165	5.38	50
Surrogate: Terphenyl-d14			*3.54*	*mg/kg wet*	*5.15*		*68.8*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0741 - SVOC Solid (Continued)										
Matrix Spike (BBH0741-MS1)	**Source: MBH0767-20**			Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.433		0.0126	mg/kg dry	0.632	0.00941	67.0	30-140		
2-Methylnaphthalene	0.509		0.0126	mg/kg dry	0.632	0.00891	79.2	30-140		
1-Methylnaphthalene	0.472		0.0126	mg/kg dry	0.632	ND	74.7	30-140		
Acenaphthylene	0.549		0.0126	mg/kg dry	0.632	ND	86.8	30-140		
Acenaphthene	0.445		0.0126	mg/kg dry	0.632	ND	70.4	30-140		
Fluorene	0.552		0.0126	mg/kg dry	0.632	ND	87.3	30-140		
Phenanthrene	0.451		0.0126	mg/kg dry	0.632	ND	71.4	30-140		
Anthracene	0.491		0.0126	mg/kg dry	0.632	ND	77.7	30-140		
Fluoranthene	0.497		0.0126	mg/kg dry	0.632	ND	78.6	30-140		
Pyrene	0.459		0.0126	mg/kg dry	0.632	ND	72.6	30-140		
Benzo[a]anthracene	0.468		0.0126	mg/kg dry	0.632	ND	74.1	30-140		
Chrysene	0.438		0.0126	mg/kg dry	0.632	ND	69.3	30-140		
Benzo[b]fluoranthene	0.544		0.0126	mg/kg dry	0.632	ND	86.1	30-140		
Benzo[k]fluoranthene	0.436		0.0126	mg/kg dry	0.632	ND	69.0	30-140		
Benzo[a]pyrene	0.465		0.0126	mg/kg dry	0.632	ND	73.6	30-140		
Indeno(1,2,3-cd)pyrene	0.501		0.0126	mg/kg dry	0.632	ND	79.3	30-140		
Dibenz(a,h)anthracene	0.539		0.0126	mg/kg dry	0.632	ND	85.2	30-140		
Benzo(g,h,i)perylene	0.483		0.0126	mg/kg dry	0.632	ND	76.4	30-140		
Surrogate: Terphenyl-d14			*4.08*	*mg/kg dry*	*6.51*		*62.7*	*40-130*		
Matrix Spike Dup (BBH0741-MSD1)	**Source: MBH0767-20**			Prepared: 8/23/2021 Analyzed: 8/31/2021						
Naphthalene	0.384		0.0126	mg/kg dry	0.632	0.00941	59.3	30-140	11.9	50
2-Methylnaphthalene	0.478		0.0126	mg/kg dry	0.632	0.00891	74.2	30-140	6.37	50
1-Methylnaphthalene	0.476		0.0126	mg/kg dry	0.632	ND	75.4	30-140	0.844	50
Acenaphthylene	0.521		0.0126	mg/kg dry	0.632	ND	82.4	30-140	5.24	50
Acenaphthene	0.428		0.0126	mg/kg dry	0.632	ND	67.7	30-140	3.95	50
Fluorene	0.531		0.0126	mg/kg dry	0.632	ND	84.1	30-140	3.75	50
Phenanthrene	0.457		0.0126	mg/kg dry	0.632	ND	72.3	30-140	1.25	50
Anthracene	0.482		0.0126	mg/kg dry	0.632	ND	76.3	30-140	1.85	50
Fluoranthene	0.513		0.0126	mg/kg dry	0.632	ND	81.1	30-140	3.14	50
Pyrene	0.475		0.0126	mg/kg dry	0.632	ND	75.2	30-140	3.54	50
Benzo[a]anthracene	0.453		0.0126	mg/kg dry	0.632	ND	71.7	30-140	3.36	50
Chrysene	0.451		0.0126	mg/kg dry	0.632	ND	71.3	30-140	2.89	50
Benzo[b]fluoranthene	0.519		0.0126	mg/kg dry	0.632	ND	82.1	30-140	4.79	50
Benzo[k]fluoranthene	0.419		0.0126	mg/kg dry	0.632	ND	66.2	30-140	4.09	50
Benzo[a]pyrene	0.478		0.0126	mg/kg dry	0.632	ND	75.7	30-140	2.82	50
Indeno(1,2,3-cd)pyrene	0.580		0.0126	mg/kg dry	0.632	ND	91.9	30-140	14.7	50
Dibenz(a,h)anthracene	0.628		0.0126	mg/kg dry	0.632	ND	99.4	30-140	15.4	50
Benzo(g,h,i)perylene	0.562		0.0126	mg/kg dry	0.632	ND	88.9	30-140	15.1	50
Surrogate: Terphenyl-d14			*3.61*	*mg/kg dry*	*6.51*		*55.4*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid										
LCS (BBH0797-BS1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.482		0.0100	mg/kg wet	0.500		96.3	32-133		
2-Methylnaphthalene	0.616		0.0100	mg/kg wet	0.500		123	45-138		
1-Methylnaphthalene	0.558		0.0100	mg/kg wet	0.500		112	47-135		
Acenaphthylene	0.589		0.0100	mg/kg wet	0.500		118	48-136		
Acenaphthene	0.451		0.0100	mg/kg wet	0.500		90.1	52-127		
Fluorene	0.572		0.0100	mg/kg wet	0.500		114	56-126		
Phenanthrene	0.536		0.0100	mg/kg wet	0.500		107	69-127		
Anthracene	0.482		0.0100	mg/kg wet	0.500		96.4	32-141		
Fluoranthene	0.478		0.0100	mg/kg wet	0.500		95.7	45-130		
Pyrene	0.459		0.0100	mg/kg wet	0.500		91.8	71-141		
Benzo[a]anthracene	0.472		0.0100	mg/kg wet	0.500		94.4	47-139		
Chrysene	0.462		0.0100	mg/kg wet	0.500		92.3	36-133		
Benzo[b]fluoranthene	0.522		0.0100	mg/kg wet	0.500		104	48-177		
Benzo[k]fluoranthene	0.454		0.0100	mg/kg wet	0.500		90.9	47-169		
Benzo[a]pyrene	0.432		0.0100	mg/kg wet	0.500		86.5	51-155		
Indeno(1,2,3-cd)pyrene	0.363		0.0100	mg/kg wet	0.500		72.6	66-166		
Dibenz(a,h)anthracene	0.502		0.0100	mg/kg wet	0.500		100	57-155		
Benzo(g,h,i)perylene	0.505		0.0100	mg/kg wet	0.500		101	49-165		
Surrogate: Terphenyl-d14			*4.85*	*mg/kg wet*	*5.15*		*94.1*	*40-130*		
LCS Dup (BBH0797-BSD1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.403		0.0100	mg/kg wet	0.500		80.6	32-133	17.7	50
2-Methylnaphthalene	0.484		0.0100	mg/kg wet	0.500		96.9	45-138	23.9	50
1-Methylnaphthalene	0.468		0.0100	mg/kg wet	0.500		93.5	47-135	17.6	50
Acenaphthylene	0.587		0.0100	mg/kg wet	0.500		117	48-136	0.296	50
Acenaphthene	0.447		0.0100	mg/kg wet	0.500		89.3	52-127	0.869	50
Fluorene	0.545		0.0100	mg/kg wet	0.500		109	56-126	4.87	50
Phenanthrene	0.518		0.0100	mg/kg wet	0.500		104	69-127	3.36	50
Anthracene	0.483		0.0100	mg/kg wet	0.500		96.6	32-141	0.189	50
Fluoranthene	0.428		0.0100	mg/kg wet	0.500		85.5	45-130	11.2	50
Pyrene	0.443		0.0100	mg/kg wet	0.500		88.5	71-141	3.60	50
Benzo[a]anthracene	0.464		0.0100	mg/kg wet	0.500		92.8	47-139	1.75	50
Chrysene	0.463		0.0100	mg/kg wet	0.500		92.6	36-133	0.275	50
Benzo[b]fluoranthene	0.534		0.0100	mg/kg wet	0.500		107	48-177	2.37	50
Benzo[k]fluoranthene	0.429		0.0100	mg/kg wet	0.500		85.8	47-169	5.70	50
Benzo[a]pyrene	0.427		0.0100	mg/kg wet	0.500		85.3	51-155	1.34	50
Indeno(1,2,3-cd)pyrene	0.544		0.0100	mg/kg wet	0.500		109	66-166	39.9	50
Dibenz(a,h)anthracene	0.527		0.0100	mg/kg wet	0.500		105	57-155	4.96	50
Benzo(g,h,i)perylene	0.531		0.0100	mg/kg wet	0.500		106	49-165	5.04	50
Surrogate: Terphenyl-d14			*4.16*	*mg/kg wet*	*5.15*		*80.8*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid (Continued)										
Matrix Spike (BBH0797-MS1)			**Source: MBH0767-41**		Prepared: 8/24/2021 Analyzed: 9/2/2021					
Naphthalene	0.440		0.0128	mg/kg dry	0.642	ND	68.5	30-140		
2-Methylnaphthalene	0.558		0.0128	mg/kg dry	0.642	0.00707	85.8	30-140		
1-Methylnaphthalene	0.530		0.0128	mg/kg dry	0.642	0.00848	81.4	30-140		
Acenaphthylene	0.557		0.0128	mg/kg dry	0.642	ND	86.8	30-140		
Acenaphthene	0.501		0.0128	mg/kg dry	0.642	ND	78.0	30-140		
Fluorene	0.560		0.0128	mg/kg dry	0.642	ND	87.4	30-140		
Phenanthrene	0.408		0.0128	mg/kg dry	0.642	0.0107	61.9	30-140		
Anthracene	0.457		0.0128	mg/kg dry	0.642	ND	71.2	30-140		
Fluoranthene	0.509		0.0128	mg/kg dry	0.642	ND	79.4	30-140		
Pyrene	0.625		0.0128	mg/kg dry	0.642	0.0305	92.6	30-140		
Benzo[a]anthracene	0.517		0.0128	mg/kg dry	0.642	ND	80.6	30-140		
Chrysene	0.575		0.0128	mg/kg dry	0.642	0.0198	86.6	30-140		
Benzo[b]fluoranthene	0.488		0.0128	mg/kg dry	0.642	ND	76.1	30-140		
Benzo[k]fluoranthene	0.478		0.0128	mg/kg dry	0.642	ND	74.5	30-140		
Benzo[a]pyrene	0.436		0.0128	mg/kg dry	0.642	ND	68.0	30-140		
Indeno(1,2,3-cd)pyrene	0.477		0.0128	mg/kg dry	0.642	ND	74.3	30-140		
Dibenz(a,h)anthracene	0.497		0.0128	mg/kg dry	0.642	ND	77.5	30-140		
Benzo(g,h,i)perylene	0.478		0.0128	mg/kg dry	0.642	ND	74.6	30-140		
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		
Matrix Spike Dup (BBH0797-MSD1)			**Source: MBH0767-41**		Prepared: 8/24/2021 Analyzed: 9/2/2021					
Naphthalene	0.419		0.0128	mg/kg dry	0.642	ND	65.3	30-140	4.86	50
2-Methylnaphthalene	0.499		0.0128	mg/kg dry	0.642	0.00707	76.7	30-140	11.1	50
1-Methylnaphthalene	0.487		0.0128	mg/kg dry	0.642	0.00848	74.6	30-140	8.53	50
Acenaphthylene	0.550		0.0128	mg/kg dry	0.642	ND	85.8	30-140	1.26	50
Acenaphthene	0.446		0.0128	mg/kg dry	0.642	ND	69.6	30-140	11.5	50
Fluorene	0.554		0.0128	mg/kg dry	0.642	ND	86.4	30-140	1.09	50
Phenanthrene	0.363		0.0128	mg/kg dry	0.642	0.0107	54.8	30-140	11.8	50
Anthracene	0.472		0.0128	mg/kg dry	0.642	ND	73.6	30-140	3.25	50
Fluoranthene	0.507		0.0128	mg/kg dry	0.642	ND	79.1	30-140	0.369	50
Pyrene	0.520		0.0128	mg/kg dry	0.642	0.0305	76.4	30-140	18.2	50
Benzo[a]anthracene	0.487		0.0128	mg/kg dry	0.642	ND	75.9	30-140	6.01	50
Chrysene	0.475		0.0128	mg/kg dry	0.642	0.0198	70.9	30-140	19.2	50
Benzo[b]fluoranthene	0.444		0.0128	mg/kg dry	0.642	ND	69.3	30-140	9.41	50
Benzo[k]fluoranthene	0.441		0.0128	mg/kg dry	0.642	ND	68.8	30-140	7.91	50
Benzo[a]pyrene	0.370		0.0128	mg/kg dry	0.642	ND	57.8	30-140	16.3	50
Indeno(1,2,3-cd)pyrene	0.449		0.0128	mg/kg dry	0.642	ND	70.0	30-140	5.98	50
Dibenz(a,h)anthracene	0.448		0.0128	mg/kg dry	0.642	ND	69.9	30-140	10.3	50
Benzo(g,h,i)perylene	0.436		0.0128	mg/kg dry	0.642	ND	67.9	30-140	9.37	50
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: Anatek ID	COMPANY: Anatek Labs, Inc.	PHONE: (208) 883-2839	FAX: (208) 882-9246
ADDRESS: 1282 Alturas Dr		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Moscow, ID 83843			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108721-001A	RCR-SB1 (0')	4OZGU	MeOH (Soil)	8/11/2021 10:00:00 AM	1	8270 SIMS PAH only
2	2108721-002A	RCR-SB1 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 10:05:00 AM	1	8270 SIMS PAH only
3	2108721-003A	RCR-SB1 (4')	4OZGU	MeOH (Soil)	8/11/2021 10:10:00 AM	1	8270 SIMS PAH only
4	2108721-004A	RCR-SB1 (5')	4OZGU	MeOH (Soil)	8/11/2021 10:12:00 AM	1	8270 SIMS PAH only
5	2108721-005A	RCR-SB1 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 10:15:00 AM	1	8270 SIMS PAH only
6	2108721-006A	RCR-SB1 (8')	4OZGU	MeOH (Soil)	8/11/2021 10:20:00 AM	1	8270 SIMS PAH only
7	2108721-007A	RCR-SB2 (0')	4OZGU	MeOH (Soil)	8/11/2021 11:30:00 AM	1	8270 SIMS PAH only
8	2108721-008A	RCR-SB2 (2')	4OZGU	MeOH (Soil)	8/11/2021 11:35:00 AM	1	8270 SIMS PAH only
9	2108721-009A	RCR-SB2 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 11:40:00 AM	1	8270 SIMS PAH only
10	2108721-010A	RCR-SB2 (5')	4OZGU	MeOH (Soil)	8/11/2021 11:45:00 AM	1	8270 SIMS PAH only
11	2108721-011A	RCR-SB2 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 11:50:00 AM	1	8270 SIMS PAH only
12	2108721-012A	RCR-SB2 (8')	4OZGU	MeOH (Soil)	8/11/2021 11:55:00 AM	1	8270 SIMS PAH only
13	2108721-013A	RCR-SB3 (0')	4OZGU	MeOH (Soil)	8/11/2021 12:40:00 PM	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/18/2021	Time: 3:03 PM	Received By:	Date: 8/18/21	Time: 1103
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 2 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
14	2108721-014A	RCR-SB3 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 12:45:00 PM	1	8270 SIMS PAH only
15	2108721-016A	RCR-SB3 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 12:55:00 PM	1	8270 SIMS PAH only
16	2108721-017A	RCR-SB3 (8')	4OZGU	MeOH (Soil)	8/11/2021 1:00:00 PM	1	8270 SIMS PAH only
17	2108721-018A	RCR-SB4 (0')	4OZGU	MeOH (Soil)	8/11/2021 2:00:00 PM	1	8270 SIMS PAH only
18	2108721-019A	RCR-SB4 (2')	4OZGU	MeOH (Soil)	8/11/2021 2:03:00 PM	1	8270 SIMS PAH only
19	2108721-020A	RCR-SB4 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 2:05:00 PM	1	8270 SIMS PAH only
20	2108721-021A	RCR-SB4 (5')	4OZGU	MeOH (Soil)	8/12/2021 7:40:00 AM	1	8270 SIMS PAH only
21	2108721-022A	RCR-SB4 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 2:15:00 PM	1	8270 SIMS PAH only
22	2108721-023A	RCR-SB4 (8')	4OZGU	MeOH (Soil)	8/11/2021 2:20:00 PM	1	8270 SIMS PAH only
23	2108721-024A	RCR-SB5 (0')	4OZGU	MeOH (Soil)	8/11/2021 3:30:00 PM	1	8270 SIMS PAH only
24	2108721-025A	RCR-SB5 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 3:35:00 PM	1	8270 SIMS PAH only
25	2108721-026A	RCR-SB5 (4')	4OZGU	MeOH (Soil)	8/11/2021 3:40:00 PM	1	8270 SIMS PAH only
26	2108721-027A	RCR-SB5 (5')	4OZGU	MeOH (Soil)	8/11/2021 3:42:00 PM	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/18/2021**	Time: **3:03 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ **RUSH** Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ ℃ Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

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Page 56 of 58

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 3 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
27	2108721-028A	RCR-SB5 (7.5')	4OZGU	MeOH (Soil)	8/11/2021 3:45:00 PM	1	8270 SIMS PAH only
28	2108721-029A	RCR-SB5 (8')	4OZGU	MeOH (Soil)	8/11/2021 3:50:00 PM	1	8270 SIMS PAH only
29	2108721-031A	RCR-SB6 (2.5')	4OZGU	MeOH (Soil)	8/11/2021 4:20:00 PM	1	8270 SIMS PAH only
30	2108721-032A	RCR-SB6 (3')	4OZGU	MeOH (Soil)	8/11/2021 4:25:00 PM	1	8270 SIMS PAH only
31	2108721-033A	RCR-SS1 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:00:00 AM	1	8270 SIMS PAH only
32	2108721-034A	RCR-SS1 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:05:00 AM	1	8270 SIMS PAH only
33	2108721-035A	RCR-SS2 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:10:00 AM	1	8270 SIMS PAH only
34	2108721-036A	RCR-SS2 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:15:00 AM	1	8270 SIMS PAH only
35	2108721-037A	RCR-SS3 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:20:00 AM	1	8270 SIMS PAH only
36	2108721-038A	RCR-SS3 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:25:00 AM	1	8270 SIMS PAH only
37	2108721-039A	RCR-SS4 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:30:00 AM	1	8270 SIMS PAH only
38	2108721-040A	RCR-SS4 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:35:00 AM	1	8270 SIMS PAH only
39	2108721-041A	RCR-SS5 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:40:00 AM	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/18/2021**	Time: **3:03 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ **RUSH** Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ ℃ Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

Page 1119 of 1242

Page 57 of 58

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 4 OF: 4

MBH0767

Due: 09/02/21

SUB CONTRATOR: **Anatek ID**	COMPANY: **Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX: **(208) 882-9246**
ADDRESS: **1282 Alturas Dr**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Moscow, ID 83843**			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
40	2108721-042A	RCR-SS5 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:45:00 AM	1	8270 SIMS PAH only
41	2108721-043A	RCR-SS6 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 8:50:00 AM	1	8270 SIMS PAH only
42	2108721-044A	RCR-SS6 (1')	4OZGU	MeOH (Soil)	8/12/2021 8:55:00 AM	1	8270 SIMS PAH only
43	2108721-045A	RCR-SS7 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 9:10:00 AM	1	8270 SIMS PAH only
44	2108721-046A	RCR-SS7 (1')	4OZGU	MeOH (Soil)	8/12/2021 9:15:00 AM	1	8270 SIMS PAH only
45	2108721-047A	RCR-SS8 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 9:20:00 AM	1	8270 SIMS PAH only
46	2108721-048A	RCR-SS8 (1')	4OZGU	MeOH (Soil)	8/12/2021 9:25:00 AM	1	8270 SIMS PAH only
47	2108721-049A	RCR-SS9 (0.5')	4OZGU	MeOH (Soil)	8/12/2021 9:30:00 AM	1	~~J and MDL~~8270 SIMS PAH only

8/18/21

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: **8/18/2021**	Time: **3:03 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☐ **RUSH** Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

MBH0767

Due: 09/02/21

Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: FedEx (UPS) USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 3.0 Cooler Temp Corrected (°C): — Thermometer Used: IR-5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 47				
Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

none

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

VOC 8270 - 5403 x47

Received/Inspected By: CS Date/Time: 08/19/2021 1103

Form F19.00 - Eff 8 Feb 2019

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - Fax (208) 8829246 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - fax (509) 838-4433 - email spokane@anateklabs.com

Client:	Hall Environmental Analysis Lab	Work Order:	MBH0853
Address:	4901 Hawkins NE Suite D	Project:	2108721
	Albuquerque, NM 87109	Reported:	9/10/2021 09:19
Attn:	Andy Freeman		

Analytical Results Report

Sample Location:	2107821-015A (RCR-SB3 (5'))		
Lab/Sample Number:	MBH0853-01	Collect Date:	08/11/21 12:50
Date Received:	08/24/21 12:12	Collected By:	
Matrix:	Solid		

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.0872	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
2-Methylnaphthalene	0.0545	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Fluorene	0.0149	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Naphthalene	0.0170	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Phenanthrene	0.0330	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Pyrene	0.0153	mg/kg dry	0.0116	9/2/21 16:36	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*62.9%*		*40-130*	*9/2/21 16:36*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-030A (RCR-SB6 (0'))
Lab/Sample Number: MBH0853-02 Collect Date: 08/11/21 16:15
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	90.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	3.62	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
2-Methylnaphthalene	5.50	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Acenaphthene	0.253	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Acenaphthylene	0.0811	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Anthracene	0.0680	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Chrysene	0.0465	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Fluoranthene	0.0280	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Fluorene	0.464	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Naphthalene	0.871	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Phenanthrene	0.634	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Pyrene	0.0963	mg/kg dry	0.0111	9/2/21 16:59	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.7%*		*40-130*	*9/2/21 16:59*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-050A (RCR-SS9 (1'))
Lab/Sample Number: MBH0853-03 Collect Date: 08/11/21 09:35
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	86.6	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0523	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Naphthalene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Phenanthrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Pyrene	ND	mg/kg dry	0.0231	9/2/21 20:55	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*53.1%*		*40-130*	*9/2/21 20:55*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-051A (RCR-BD1)
Lab/Sample Number: MBH0853-04 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	12.9	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
2-Methylnaphthalene	ND	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Acenaphthene	5.29	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Acenaphthylene	1.08	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Anthracene	1.41	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.444	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[a]anthracene	1.56	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[a]pyrene	0.612	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.811	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Chrysene	5.23	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.259	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Fluoranthene	1.39	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Fluorene	6.78	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.189	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Naphthalene	1.14	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Phenanthrene	8.75	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Pyrene	6.49	mg/kg dry	0.131	9/2/21 21:19	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*58.3%*		*40-130*	*9/2/21 21:19*	*TGT*	*EPA 8270D*	

Anatek Labs, Inc.

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Analytical Results Report

(Continued)

Sample Location: 2107821-052A (RCR-BD2)
Lab/Sample Number: MBH0853-05 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	94.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.149	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
2-Methylnaphthalene	0.106	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Acenaphthene	0.0652	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Anthracene	0.0348	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.519	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[a]anthracene	0.543	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[a]pyrene	1.95	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.704	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.148	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Chrysene	2.67	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.271	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Fluoranthene	0.111	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Fluorene	0.0732	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.225	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Naphthalene	0.137	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Phenanthrene	0.148	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Pyrene	2.73	mg/kg dry	0.0212	9/2/21 21:42	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*89.6%*		*40-130*	*9/2/21 21:42*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2107821-053A (RCR-BD3)
Lab/Sample Number: MBH0853-06 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	80.5	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	84.2	mg/kg dry	0.248	9/2/21 22:06	TGT	EPA 8270D	
2-Methylnaphthalene	146	mg/kg dry	0.248	9/2/21 22:06	TGT	EPA 8270D	
Acenaphthene	4.28	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Acenaphthylene	2.34	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Anthracene	19.9	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo(g,h,i)perylene	1.02	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[a]anthracene	2.88	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[a]pyrene	2.64	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[b]fluoranthene	1.21	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Benzo[k]fluoranthene	1.12	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Chrysene	3.12	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.518	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Fluoranthene	1.29	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Fluorene	0.411	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.340	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Naphthalene	50.6	mg/kg dry	0.248	9/2/21 22:06	TGT	EPA 8270D	
Phenanthrene	16.7	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Pyrene	4.98	mg/kg dry	0.0248	9/2/21 22:06	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*89.5%*		*40-130*	*9/2/21 22:06*	*TGT*	*EPA 8270D*	

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Analytical Results Report

(Continued)

Sample Location: 2107821-054A (RCR-BD4)
Lab/Sample Number: MBH0853-07 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	79.0	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.332	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
2-Methylnaphthalene	0.534	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Acenaphthene	0.0195	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo(g,h,i)perylene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Chrysene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Fluorene	0.0353	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Naphthalene	0.200	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Phenanthrene	0.106	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Pyrene	0.0266	mg/kg dry	0.0127	9/2/21 17:23	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*61.7%*		*40-130*	*9/2/21 17:23*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-055A (RCR-BD5)
Lab/Sample Number: MBH0853-08 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	76.9	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	0.143	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
2-Methylnaphthalene	0.221	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Acenaphthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Acenaphthylene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Anthracene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.0787	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[a]anthracene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[a]pyrene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Chrysene	0.102	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Dibenz(a,h)anthracene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Fluoranthene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Fluorene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	ND	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Naphthalene	0.0767	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Phenanthrene	0.0605	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Pyrene	0.0530	mg/kg dry	0.0260	9/2/21 22:29	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*109%*		*40-130*	*9/2/21 22:29*	*TGT*	*EPA 8270D*	

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Analytical Results Report
(Continued)

Sample Location: 2107821-056A (RCR-BD6)
Lab/Sample Number: MBH0853-09 Collect Date: 08/11/21 00:00
Date Received: 08/24/21 12:12 Collected By:
Matrix: Solid

Analyte	Result	Units	PQL	Analyzed	Analyst	Method	Qualifier
Inorganics							
% Solids	84.1	%	0.100	8/26/21 16:07	JBM	SM 2540 G	
Semivolatiles							
1-Methylnaphthalene	13.3	mg/kg dry	0.475	9/2/21 22:53	TGT	EPA 8270D	
2-Methylnaphthalene	21.0	mg/kg dry	0.475	9/2/21 22:53	TGT	EPA 8270D	
Acenaphthene	1.51	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Acenaphthylene	0.779	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Anthracene	4.08	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo(g,h,i)perylene	0.126	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[a]anthracene	0.163	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[a]pyrene	0.298	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[b]fluoranthene	0.164	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Benzo[k]fluoranthene	0.152	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Chrysene	1.07	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Dibenz(a,h)anthracene	0.0457	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Fluoranthene	0.654	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Fluorene	2.96	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Indeno(1,2,3-cd)pyrene	0.0326	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Naphthalene	14.1	mg/kg dry	0.475	9/2/21 22:53	TGT	EPA 8270D	
Phenanthrene	3.57	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Pyrene	1.97	mg/kg dry	0.0238	9/2/21 22:53	TGT	EPA 8270D	
Surrogate: Terphenyl-d14	*80.2%*		*40-130*	*9/2/21 22:53*	*TGT*	*EPA 8270D*	

Authorized Signature,



Justin Doty For Todd Taruscio, Laboratory Manager

PQL	Practical Quantitation Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
*	Not a state-certified analyte

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The results reported related only to the samples indicated.

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Quality Control Data

Semivolatiles

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid										
LCS (BBH0797-BS1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.482		0.0100	mg/kg wet	0.500		96.3	32-133		
2-Methylnaphthalene	0.616		0.0100	mg/kg wet	0.500		123	45-138		
1-Methylnaphthalene	0.558		0.0100	mg/kg wet	0.500		112	47-135		
Acenaphthylene	0.589		0.0100	mg/kg wet	0.500		118	48-136		
Acenaphthene	0.451		0.0100	mg/kg wet	0.500		90.1	52-127		
Fluorene	0.572		0.0100	mg/kg wet	0.500		114	56-126		
Phenanthrene	0.536		0.0100	mg/kg wet	0.500		107	69-127		
Anthracene	0.482		0.0100	mg/kg wet	0.500		96.4	32-141		
Fluoranthene	0.478		0.0100	mg/kg wet	0.500		95.7	45-130		
Pyrene	0.459		0.0100	mg/kg wet	0.500		91.8	71-141		
Benzo[a]anthracene	0.472		0.0100	mg/kg wet	0.500		94.4	47-139		
Chrysene	0.462		0.0100	mg/kg wet	0.500		92.3	36-133		
Benzo[b]fluoranthene	0.522		0.0100	mg/kg wet	0.500		104	48-177		
Benzo[k]fluoranthene	0.454		0.0100	mg/kg wet	0.500		90.9	47-169		
Benzo[a]pyrene	0.432		0.0100	mg/kg wet	0.500		86.5	51-155		
Indeno(1,2,3-cd)pyrene	0.363		0.0100	mg/kg wet	0.500		72.6	66-166		
Dibenz(a,h)anthracene	0.502		0.0100	mg/kg wet	0.500		100	57-155		
Benzo(g,h,i)perylene	0.505		0.0100	mg/kg wet	0.500		101	49-165		
Surrogate: Terphenyl-d14			*4.85*	*mg/kg wet*	*5.15*		*94.1*	*40-130*		
LCS Dup (BBH0797-BSD1)				Prepared: 8/24/2021 Analyzed: 9/2/2021						
Naphthalene	0.403		0.0100	mg/kg wet	0.500		80.6	32-133	17.7	50
2-Methylnaphthalene	0.484		0.0100	mg/kg wet	0.500		96.9	45-138	23.9	50
1-Methylnaphthalene	0.468		0.0100	mg/kg wet	0.500		93.5	47-135	17.6	50
Acenaphthylene	0.587		0.0100	mg/kg wet	0.500		117	48-136	0.296	50
Acenaphthene	0.447		0.0100	mg/kg wet	0.500		89.3	52-127	0.869	50
Fluorene	0.545		0.0100	mg/kg wet	0.500		109	56-126	4.87	50
Phenanthrene	0.518		0.0100	mg/kg wet	0.500		104	69-127	3.36	50
Anthracene	0.483		0.0100	mg/kg wet	0.500		96.6	32-141	0.189	50
Fluoranthene	0.428		0.0100	mg/kg wet	0.500		85.5	45-130	11.2	50
Pyrene	0.443		0.0100	mg/kg wet	0.500		88.5	71-141	3.60	50
Benzo[a]anthracene	0.464		0.0100	mg/kg wet	0.500		92.8	47-139	1.75	50
Chrysene	0.463		0.0100	mg/kg wet	0.500		92.6	36-133	0.275	50
Benzo[b]fluoranthene	0.534		0.0100	mg/kg wet	0.500		107	48-177	2.37	50
Benzo[k]fluoranthene	0.429		0.0100	mg/kg wet	0.500		85.8	47-169	5.70	50
Benzo[a]pyrene	0.427		0.0100	mg/kg wet	0.500		85.3	51-155	1.34	50
Indeno(1,2,3-cd)pyrene	0.544		0.0100	mg/kg wet	0.500		109	66-166	39.9	50
Dibenz(a,h)anthracene	0.527		0.0100	mg/kg wet	0.500		105	57-155	4.96	50
Benzo(g,h,i)perylene	0.531		0.0100	mg/kg wet	0.500		106	49-165	5.04	50
Surrogate: Terphenyl-d14			*4.16*	*mg/kg wet*	*5.15*		*80.8*	*40-130*		

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Quality Control Data
(Continued)

Semivolatiles (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BBH0797 - SVOC Solid (Continued)										
Matrix Spike (BBH0797-MS1)			**Source: MBH0767-41**		Prepared: 8/24/2021 Analyzed: 9/2/2021					
Naphthalene	0.440		0.0128	mg/kg dry	0.642	ND	68.5	30-140		
2-Methylnaphthalene	0.558		0.0128	mg/kg dry	0.642	0.00707	85.8	30-140		
1-Methylnaphthalene	0.530		0.0128	mg/kg dry	0.642	0.00848	81.4	30-140		
Acenaphthylene	0.557		0.0128	mg/kg dry	0.642	ND	86.8	30-140		
Acenaphthene	0.501		0.0128	mg/kg dry	0.642	ND	78.0	30-140		
Fluorene	0.560		0.0128	mg/kg dry	0.642	ND	87.4	30-140		
Phenanthrene	0.408		0.0128	mg/kg dry	0.642	0.0107	61.9	30-140		
Anthracene	0.457		0.0128	mg/kg dry	0.642	ND	71.2	30-140		
Fluoranthene	0.509		0.0128	mg/kg dry	0.642	ND	79.4	30-140		
Pyrene	0.625		0.0128	mg/kg dry	0.642	0.0305	92.6	30-140		
Benzo[a]anthracene	0.517		0.0128	mg/kg dry	0.642	ND	80.6	30-140		
Chrysene	0.575		0.0128	mg/kg dry	0.642	0.0198	86.6	30-140		
Benzo[b]fluoranthene	0.488		0.0128	mg/kg dry	0.642	ND	76.1	30-140		
Benzo[k]fluoranthene	0.478		0.0128	mg/kg dry	0.642	ND	74.5	30-140		
Benzo[a]pyrene	0.436		0.0128	mg/kg dry	0.642	ND	68.0	30-140		
Indeno(1,2,3-cd)pyrene	0.477		0.0128	mg/kg dry	0.642	ND	74.3	30-140		
Dibenz(a,h)anthracene	0.497		0.0128	mg/kg dry	0.642	ND	77.5	30-140		
Benzo(g,h,i)perylene	0.478		0.0128	mg/kg dry	0.642	ND	74.6	30-140		
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		
Matrix Spike Dup (BBH0797-MSD1)			**Source: MBH0767-41**		Prepared: 8/24/2021 Analyzed: 9/2/2021					
Naphthalene	0.419		0.0128	mg/kg dry	0.642	ND	65.3	30-140	4.86	50
2-Methylnaphthalene	0.499		0.0128	mg/kg dry	0.642	0.00707	76.7	30-140	11.1	50
1-Methylnaphthalene	0.487		0.0128	mg/kg dry	0.642	0.00848	74.6	30-140	8.53	50
Acenaphthylene	0.550		0.0128	mg/kg dry	0.642	ND	85.8	30-140	1.26	50
Acenaphthene	0.446		0.0128	mg/kg dry	0.642	ND	69.6	30-140	11.5	50
Fluorene	0.554		0.0128	mg/kg dry	0.642	ND	86.4	30-140	1.09	50
Phenanthrene	0.363		0.0128	mg/kg dry	0.642	0.0107	54.8	30-140	11.8	50
Anthracene	0.472		0.0128	mg/kg dry	0.642	ND	73.6	30-140	3.25	50
Fluoranthene	0.507		0.0128	mg/kg dry	0.642	ND	79.1	30-140	0.369	50
Pyrene	0.520		0.0128	mg/kg dry	0.642	0.0305	76.4	30-140	18.2	50
Benzo[a]anthracene	0.487		0.0128	mg/kg dry	0.642	ND	75.9	30-140	6.01	50
Chrysene	0.475		0.0128	mg/kg dry	0.642	0.0198	70.9	30-140	19.2	50
Benzo[b]fluoranthene	0.444		0.0128	mg/kg dry	0.642	ND	69.3	30-140	9.41	50
Benzo[k]fluoranthene	0.441		0.0128	mg/kg dry	0.642	ND	68.8	30-140	7.91	50
Benzo[a]pyrene	0.370		0.0128	mg/kg dry	0.642	ND	57.8	30-140	16.3	50
Indeno(1,2,3-cd)pyrene	0.449		0.0128	mg/kg dry	0.642	ND	70.0	30-140	5.98	50
Dibenz(a,h)anthracene	0.448		0.0128	mg/kg dry	0.642	ND	69.9	30-140	10.3	50
Benzo(g,h,i)perylene	0.436		0.0128	mg/kg dry	0.642	ND	67.9	30-140	9.37	50
Surrogate: Terphenyl-d14			*3.93*	*mg/kg dry*	*6.61*		*59.4*	*40-130*		

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HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory

MBH0853

Due: 09/08/21

SUB CONTRATOR:	**Anatek ID**	COMPANY:	**Anatek Labs, Inc.**	PHONE: **(208) 883-2839**	FAX:
ADDRESS:	**1282 Alturas Dr**			ACCOUNT #:	EMAIL:
CITY, STATE, ZIP:	**Moscow, ID 83843**				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2108721-015A	RCR-SB3 (5')	4OZGU	MeOH (Soil)	8/11/2021 12:50:00 PM	1	8270 SIMS PAH only
2	2108721-030A	RCR-SB6 (0')	4OZGU	MeOH (Soil)	8/11/2021 4:15:00 PM	1	8270 SIMS PAH only
3	2108721-050A	RCR-SS9 (1')	4OZGU	MeOH (Soil)	8/12/2021 9:35:00 AM	1	8270 SIMS PAH only
4	2108721-051A	RCR-BD1	4OZGU	MeOH (Soil)	8/11/2021	1	8270 SIMS PAH only
5	2108721-052A	RCR-BD2	4OZGU	MeOH (Soil)	8/11/2021	1	8270 SIMS PAH only
6	2108721-053A	RCR-BD3	4OZGU	MeOH (Soil)	8/11/2021	1	8270 SIMS PAH only
7	2108721-054A	RCR-BD4	4OZGU	MeOH (Soil)	8/12/2021	1	8270 SIMS PAH only
8	2108721-055A	RCR-BD5	4OZGU	MeOH (Soil)	8/12/2021	1	8270 SIMS PAH only
9	2108721-056A	RCR-BD6	4OZGU	MeOH (Soil)	8/12/2021	1	8270 SIMS PAH only

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 8/23/2021	Time: 2:43 PM	Received By:	Date: 8/24/21	Time: 1210
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☑ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:

☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ C Attempt to Cool ? _____

Comments: _____

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/16/2024 3:11:43 PM

MBH0853

Due: 09/08/21

Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: HALL Project:

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: (Yes) No Custody Seals Intact: (Yes) No N/A

Number of Coolers/Boxes: 1 Type of Ice: (Ice/Ice Packs) Blue Ice Dry Ice None

Packing Material: (Bubble Wrap) Bags Foam/Peanuts None Other: _____

Cooler Temp As Read (°C): 0.9 Cooler Temp Corrected (°C): _____ Thermometer Used: DT5

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Samples Properly Preserved?	Yes	No	(N/A)	
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)	
VOC Trip Blanks Present?	Yes	No	(N/A)	
Labels and Chains Agree?	(Yes)	No	N/A	
Total Number of Sample Bottles Received: 9				
Chain of Custody Fully Completed?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	Yes	(No)	Unknown	

Record preservatives (and lot numbers, if known) for containers below:

None

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

8270 - 9 4oz x 9

Received/Inspected By: CS Date/Time: 08/24/2021 1212

Form F19.00 - Eff 8 Feb 2019

Page 1 of 1

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62061** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62061** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849840** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.20								
Cadmium	ND	0.20								
Selenium	ND	0.20								
Silver	ND	0.20								

Sample ID: **MSLLLCS-62061** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62061** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849841** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.088	0.20	0.1000	0	88.4	70	130			J
Cadmium	0.091	0.20	0.1000	0	91.4	70	130			J
Selenium	0.11	0.20	0.1000	0	109	70	130			J
Silver	0.12	0.20	0.1000	0	118	70	130			J

Sample ID: **MSLCS-62061** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62061** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849842** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	4.6	0.20	5.000	0	91.3	80	120			
Cadmium	4.4	0.20	5.000	0	88.6	80	120			
Selenium	4.5	0.20	5.000	0	90.0	80	120			
Silver	2.6	0.20	2.500	0	103	80	120			

Sample ID: **MB-62062** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62062** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849845** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.20								
Barium	ND	0.20								
Cadmium	ND	0.20								
Chromium	ND	0.20								
Selenium	ND	0.20								
Silver	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MSLLLCS-62062** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62062** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849846** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.085	0.20	0.1000	0	85.5	70	130			J
Barium	0.13	0.20	0.1000	0	125	70	130			J
Cadmium	0.084	0.20	0.1000	0	83.9	70	130			J
Chromium	0.13	0.20	0.1000	0	127	70	130			J
Selenium	0.10	0.20	0.1000	0	99.7	70	130			J
Silver	0.12	0.20	0.1000	0	119	70	130			J

Sample ID: **MSLCS-62062** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62062** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849847** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	4.7	0.20	5.000	0	94.2	80	120			
Barium	5.2	0.20	5.000	0	104	80	120			
Cadmium	4.3	0.20	5.000	0	85.1	80	120			
Chromium	5.0	0.20	5.000	0	101	80	120			
Selenium	4.6	0.20	5.000	0	92.1	80	120			
Silver	2.5	0.20	2.500	0	101	80	120			

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849851** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849852** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.11	0.20	0.1000	0	113	70	130			J

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80771**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2849853** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	2.4	0.20	2.500	0	95.1	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62061** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62061** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851331** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.20								
Chromium	ND	0.20								

Sample ID: **MSLCS-62061** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62061** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851333** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	5.0	0.20	5.000	0	99.6	80	120			
Chromium	5.0	0.20	5.000	0	99.3	80	120			

Sample ID: **MB-62062** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62062** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851334** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.20								

Sample ID: **MSLLLCS-62062** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62062** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851335** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.13	0.20	0.1000	0	130	70	130			J

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851337** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.20								
Cadmium	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851338** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.10	0.20	0.1000	0	103	70	130			J
Cadmium	0.079	0.20	0.1000	0	79.1	70	130			J

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851339** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	4.1	0.20	5.000	0	81.5	80	120			
Cadmium	4.1	0.20	5.000	0	81.5	80	120			

Sample ID: **MSLCS-62062** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62062** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851345** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	5.9	0.50	5.000	0	118	80	120			

Sample ID: **MSLLLCS-62061** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62061** RunNo: **80806**
Prep Date: **8/18/2021** Analysis Date: **8/25/2021** SeqNo: **2851348** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.13	0.20	0.1000	0	129	70	130			J
Chromium	0.22	0.20	0.1000	0	221	70	130			S

Sample ID: **MB-62061** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62061** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852735** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.20								

Sample ID: **MSLLLCS-62061** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62061** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852736** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.12	0.20	0.1000	0	115	70	130			J

Sample ID: **MSLCS-62061** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62061** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852737** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	5.7	0.20	5.000	0	114	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852741** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852742** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.10	0.20	0.1000	0	103	70	130			J

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80840**
Prep Date: **8/18/2021** Analysis Date: **8/26/2021** SeqNo: **2852743** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	4.9	0.20	5.000	0	97.3	80	120			

Sample ID: **MB-62063** SampType: **MBLK** TestCode: **EPA Method 6020: Metals**
Client ID: **PBS** Batch ID: **62063** RunNo: **80870**
Prep Date: **8/18/2021** Analysis Date: **8/27/2021** SeqNo: **2853691** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.20								
Lead	ND	0.20								

Sample ID: **MSLLLCS-62063** SampType: **LCSLL** TestCode: **EPA Method 6020: Metals**
Client ID: **BatchQC** Batch ID: **62063** RunNo: **80870**
Prep Date: **8/18/2021** Analysis Date: **8/27/2021** SeqNo: **2853692** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.11	0.20	0.1000	0	105	70	130			J
Lead	0.11	0.20	0.1000	0	107	70	130			J

Sample ID: **MSLCS-62063** SampType: **LCS** TestCode: **EPA Method 6020: Metals**
Client ID: **LCSS** Batch ID: **62063** RunNo: **80870**
Prep Date: **8/18/2021** Analysis Date: **8/27/2021** SeqNo: **2853693** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	5.1	0.20	5.000	0	102	80	120			
Lead	5.1	0.20	5.000	0	102	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-021AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB4 (5')** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842396** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	61	9.9	49.60	0	123	15	184			
Surr: DNOP	4.8		4.960		97.3	70	130			

Sample ID: **2108721-021AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB4 (5')** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842397** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	9.7	48.40	0	108	15	184	15.0	23.9	
Surr: DNOP	4.5		4.840		93.1	70	130	0	0	

Sample ID: **LCS-62000** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842403** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	103	68.9	141			
Surr: DNOP	4.5		5.000		90.9	70	130			

Sample ID: **MB-62000** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **62000** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2842405** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		105	70	130			

Sample ID: **LCS-61999** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **61999** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2843603** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.3	68.9	141			
Surr: DNOP	4.6		5.000		92.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-61999** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **61999** RunNo: **80580**
Prep Date: **8/16/2021** Analysis Date: **8/17/2021** SeqNo: **2843604** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	70	130			

Sample ID: **MB-62016** SampType: **MBLK** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS** Batch ID: **62016** RunNo: **80624**
Prep Date: **8/17/2021** Analysis Date: **8/18/2021** SeqNo: **2844796** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		110	70	130			

Sample ID: **LCS-62016** SampType: **LCS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS** Batch ID: **62016** RunNo: **80624**
Prep Date: **8/17/2021** Analysis Date: **8/18/2021** SeqNo: **2844799** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	104	68.9	141			
Surr: DNOP	5.1		5.000		103	70	130			

Sample ID: **2108721-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80623**
Prep Date: **8/16/2021** Analysis Date: **8/18/2021** SeqNo: **2845306** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	68	47	46.64	0	145	15	184			
Surr: DNOP	6.2		4.664		134	70	130			S

Sample ID: **2108721-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80623**
Prep Date: **8/16/2021** Analysis Date: **8/18/2021** SeqNo: **2845307** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	71	47	46.86	0	152	15	184	5.43	23.9	
Surr: DNOP	5.9		4.686		126	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-001AMS** SampType: **MS** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80691**
Prep Date: **8/16/2021** Analysis Date: **8/20/2021** SeqNo: **2847604** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	67	9.3	46.64	36.69	65.2	15	184			
Surr: DNOP	5.3		4.664		114	70	130			

Sample ID: **2108721-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **RCR-SB1 (0')** Batch ID: **61999** RunNo: **80691**
Prep Date: **8/16/2021** Analysis Date: **8/20/2021** SeqNo: **2847605** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	9.4	46.86	36.69	53.7	15	184	8.78	23.9	
Surr: DNOP	5.3		4.686		113	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841731** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	112	70	130			
Toluene	1.0	0.050	1.000	0	102	70	130			
Chlorobenzene	0.97	0.050	1.000	0	97.1	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	105	70	130			
Trichloroethene (TCE)	1.1	0.050	1.000	0	107	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.9	70	130			
Surr: Toluene-d8	0.48		0.5000		95.6	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.4	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841732** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80534**	RunNo: **80534**
Prep Date:	Analysis Date: **8/16/2021**	SeqNo: **2841732** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841732** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.48		0.5000		96.6	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.0	70	130			

Sample ID: **2108721-002ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (2.5')** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841735** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.019	0.7728	0.01124	111	70	130			
Toluene	0.77	0.039	0.7728	0	100	70	130			
Chlorobenzene	0.75	0.039	0.7728	0	96.7	70	130			
1,1-Dichloroethene	0.79	0.039	0.7728	0	103	49.9	132			
Trichloroethene (TCE)	0.82	0.039	0.7728	0	106	52.9	126			
Surr: Dibromofluoromethane	0.43		0.3864		113	70	130			
Surr: 1,2-Dichloroethane-d4	0.40		0.3864		103	70	130			
Surr: Toluene-d8	0.38		0.3864		99.2	70	130			
Surr: 4-Bromofluorobenzene	0.37		0.3864		95.0	70	130			

Sample ID: **2108721-002amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (2.5')** Batch ID: **A80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841736** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.019	0.7728	0.01124	106	70	130	4.81	20	
Toluene	0.73	0.039	0.7728	0	94.4	70	130	5.90	20	
Chlorobenzene	0.71	0.039	0.7728	0	91.5	70	130	5.53	20	
1,1-Dichloroethene	0.75	0.039	0.7728	0	96.4	49.9	132	6.18	20	
Trichloroethene (TCE)	0.78	0.039	0.7728	0	100	52.9	126	5.68	20	
Surr: Dibromofluoromethane	0.44		0.3864		113	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.40		0.3864		104	70	130	0	0	
Surr: Toluene-d8	0.37		0.3864		95.9	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.37		0.3864		94.7	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843106** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	110	70	130			
Toluene	1.0	0.050	1.000	0	102	70	130			
Chlorobenzene	1.0	0.050	1.000	0	100	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	105	70	130			
Trichloroethene (TCE)	1.0	0.050	1.000	0	100	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		105	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.9	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843107** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80598**	RunNo: **80598**
Prep Date:	Analysis Date: **8/17/2021**	SeqNo: **2843107** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843107** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.54		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		94.4	70	130			

Sample ID: **2108721-016ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB3 (7.5')** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843116** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.95	0.019	0.7770	0.1404	104	70	130			
Toluene	0.79	0.039	0.7770	0	102	70	130			
Chlorobenzene	0.77	0.039	0.7770	0	99.2	70	130			
1,1-Dichloroethene	0.77	0.039	0.7770	0	99.2	49.9	132			
Trichloroethene (TCE)	0.71	0.039	0.7770	0	92.0	52.9	126			
Surr: Dibromofluoromethane	0.38		0.3885		98.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.37		0.3885		96.3	70	130			
Surr: Toluene-d8	0.39		0.3885		101	70	130			
Surr: 4-Bromofluorobenzene	0.34		0.3885		88.5	70	130			

Sample ID: **2108721-016amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB3 (7.5')** Batch ID: **A80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843117** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.019	0.7770	0.1404	94.0	70	130	8.80	20	
Toluene	0.73	0.039	0.7770	0	93.5	70	130	8.73	20	
Chlorobenzene	0.70	0.039	0.7770	0	89.6	70	130	10.1	20	
1,1-Dichloroethene	0.72	0.039	0.7770	0	92.3	49.9	132	7.25	20	
Trichloroethene (TCE)	0.69	0.039	0.7770	0	88.3	52.9	126	4.06	20	
Surr: Dibromofluoromethane	0.39		0.3885		99.8	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.39		0.3885		101	70	130	0	0	
Surr: Toluene-d8	0.39		0.3885		100	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.35		0.3885		91.1	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844858** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	112	70	130			
Toluene	1.0	0.050	1.000	0	101	70	130			
Chlorobenzene	0.99	0.050	1.000	0	98.9	70	130			
1,1-Dichloroethene	1.1	0.050	1.000	0	106	70	130			
Trichloroethene (TCE)	1.0	0.050	1.000	0	103	70	130			
Surr: Dibromofluoromethane	0.56		0.5000		112	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.9	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844859** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80646**	RunNo: **80646**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844859** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844859** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.5000		90.8	70	130			

Sample ID: **2108721-029ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB5 (8')** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844864** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.9	0.080	3.218	1.447	108	70	130			
Toluene	3.5	0.16	3.218	0.1958	103	70	130			
Chlorobenzene	3.3	0.16	3.218	0	103	70	130			
1,1-Dichloroethene	3.2	0.16	3.218	0	101	49.9	132			
Trichloroethene (TCE)	3.0	0.16	3.218	0	93.7	52.9	126			
Surr: Dibromofluoromethane	1.6		1.609		98.3	70	130			
Surr: 1,2-Dichloroethane-d4	1.6		1.609		102	70	130			
Surr: Toluene-d8	1.6		1.609		102	70	130			
Surr: 4-Bromofluorobenzene	1.4		1.609		88.3	70	130			

Sample ID: **2108721-029amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB5 (8')** Batch ID: **A80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844865** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.6	0.080	3.218	1.447	97.8	70	130	7.13	20	
Toluene	3.2	0.16	3.218	0.1958	94.9	70	130	7.39	20	
Chlorobenzene	3.1	0.16	3.218	0	95.3	70	130	8.06	20	
1,1-Dichloroethene	3.0	0.16	3.218	0	93.8	49.9	132	7.15	20	
Trichloroethene (TCE)	2.8	0.16	3.218	0	88.5	52.9	126	5.74	20	
Surr: Dibromofluoromethane	1.5		1.609		94.9	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	1.6		1.609		100	70	130	0	0	
Surr: Toluene-d8	1.6		1.609		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.5		1.609		90.9	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846468** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	114	70	130			
Toluene	1.0	0.050	1.000	0	103	70	130			
Chlorobenzene	1.0	0.050	1.000	0	102	70	130			
1,1-Dichloroethene	1.1	0.050	1.000	0	107	70	130			
Trichloroethene (TCE)	1.0	0.050	1.000	0	102	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		109	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		104	70	130			
Surr: Toluene-d8	0.52		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.6	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846469** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A80682**	RunNo: **80682**
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846469** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846469** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.56		0.5000		112	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.53		0.5000		106	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.5	70	130			

Sample ID: **2108721-051ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-BD1** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846485** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	4.1	0.086	3.460	0.3166	110	70	130			
Toluene	3.7	0.17	3.460	0	107	70	130			
Chlorobenzene	3.6	0.17	3.460	0	104	70	130			
1,1-Dichloroethene	3.6	0.17	3.460	0	104	49.9	132			
Trichloroethene (TCE)	3.3	0.17	3.460	0	96.4	52.9	126			
Surr: Dibromofluoromethane	1.7		1.730		101	70	130			
Surr: 1,2-Dichloroethane-d4	1.8		1.730		106	70	130			
Surr: Toluene-d8	1.9		1.730		108	70	130			
Surr: 4-Bromofluorobenzene	1.5		1.730		89.3	70	130			

Sample ID: **2108721-051amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-BD1** Batch ID: **A80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846486** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	3.9	0.086	3.460	0.3166	103	70	130	5.97	20	
Toluene	3.4	0.17	3.460	0	97.6	70	130	9.32	20	
Chlorobenzene	3.3	0.17	3.460	0	95.6	70	130	8.84	20	
1,1-Dichloroethene	3.4	0.17	3.460	0	97.0	49.9	132	7.37	20	
Trichloroethene (TCE)	3.2	0.17	3.460	0	92.2	52.9	126	4.49	20	
Surr: Dibromofluoromethane	1.7		1.730		101	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	1.8		1.730		104	70	130	0	0	
Surr: Toluene-d8	1.8		1.730		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	1.5		1.730		87.8	70	130	0	0	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **R80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848398** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	103	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Chlorobenzene	1.0	0.050	1.000	0	100	70	130			
1,1-Dichloroethene	0.94	0.050	1.000	0	94.5	70	130			
Trichloroethene (TCE)	0.91	0.050	1.000	0	91.2	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		101	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		109	70	130			

Sample ID: **2108721-004ams** SampType: **MS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (5')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848403** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.024	0.9625	0.1021	79.5	70	130			
Toluene	0.91	0.048	0.9625	0.05729	89.1	70	130			
Chlorobenzene	0.86	0.048	0.9625	0	89.8	70	130			
1,1-Dichloroethene	0.79	0.048	0.9625	0	81.6	49.9	132			
Trichloroethene (TCE)	0.74	0.048	0.9625	0	76.7	52.9	126			
Surr: Dibromofluoromethane	0.44		0.4812		90.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.4812		97.2	70	130			
Surr: Toluene-d8	0.49		0.4812		102	70	130			
Surr: 4-Bromofluorobenzene	0.57		0.4812		119	70	130			

Sample ID: **2108721-004amsd** SampType: **MSD** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **RCR-SB1 (5')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848404** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.024	0.9737	0.1021	83.8	70	130	5.68	20	
Toluene	0.96	0.049	0.9737	0.05729	93.1	70	130	5.16	20	
Chlorobenzene	0.88	0.049	0.9737	0	90.8	70	130	2.23	20	
1,1-Dichloroethene	0.79	0.049	0.9737	0	81.2	49.9	132	0.664	20	
Trichloroethene (TCE)	0.77	0.049	0.9737	0	78.9	52.9	126	3.88	20	
Surr: Dibromofluoromethane	0.45		0.4869		93.1	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.48		0.4869		97.9	70	130	0	0	
Surr: Toluene-d8	0.51		0.4869		106	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.66		0.4869		135	70	130	0	0	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62009** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848411** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.025	1.000	0	93.4	70	130			
Toluene	1.0	0.050	1.000	0	104	70	130			
Chlorobenzene	1.0	0.050	1.000	0	100	70	130			
1,1-Dichloroethene	0.96	0.050	1.000	0	95.6	70	130			
Trichloroethene (TCE)	0.89	0.050	1.000	0	89.5	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		91.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.5	70	130			
Surr: Toluene-d8	0.49		0.5000		98.3	70	130			
Surr: 4-Bromofluorobenzene	0.58		0.5000		115	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **R80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848412** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **R80737**	RunNo: **80737**
Prep Date:	Analysis Date: **8/24/2021**	SeqNo: **2848412** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **R80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848412** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.47		0.5000		94.1	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		100	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.55		0.5000		111	70	130			

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.43		0.5000		85.7	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.8	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.57		0.5000		113	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **100ng 8260 lcs2** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **B80573** RunNo: **80573**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843032** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	25	1.0	20.00	0	123	70	130			
Toluene	23	1.0	20.00	0	117	70	130			
Chlorobenzene	23	1.0	20.00	0	114	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	112	70	130			
Trichloroethene (TCE)	23	1.0	20.00	0	114	70	130			
Surr: 1,2-Dichloroethane-d4	8.7		10.00		86.7	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.1	70	130			
Surr: Toluene-d8	9.4		10.00		94.4	70	130			

Sample ID: **mb2** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **B80573** RunNo: **80573**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2843033** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb2** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **B80573** RunNo: **80573**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2843033** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb2** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **B80573** RunNo: **80573**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2843033** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.0		10.00		89.6	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.9	70	130			
Surr: Dibromofluoromethane	9.0		10.00		89.6	70	130			
Surr: Toluene-d8	9.5		10.00		94.7	70	130			

Sample ID: **100ng 8260 lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R80607** RunNo: **80607**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2843673** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	20	1.0	20.00	0	97.8	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	96.9	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.6	70	130			
Surr: 1,2-Dichloroethane-d4	8.3		10.00		83.1	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	8.6		10.00		86.4	70	130			
Surr: Toluene-d8	9.4		10.00		93.6	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R80607** RunNo: **80607**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80607**	RunNo: **80607**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R80607**	RunNo: **80607**
Prep Date:	Analysis Date: **8/18/2021**	SeqNo: **2844681** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.2		10.00		81.8	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			
Surr: Dibromofluoromethane	8.4		10.00		84.4	70	130			
Surr: Toluene-d8	9.3		10.00		93.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-61996** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **61996** RunNo: **80749**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848809** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.31	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-61996** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **61996** RunNo: **80749**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848809** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.8		3.330		83.9	20.3	74.1			S
Surr: Phenol-d5	3.5		3.330		105	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	3.0		3.330		88.9	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		73.8	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		85.8	21.5	90.1			
Surr: 4-Terphenyl-d14	1.9		1.670		113	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **LCS-61996** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **61996** RunNo: **80749**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848810** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.6	0.20	1.670	0	96.5	22.9	109			
4-Chloro-3-methylphenol	3.0	0.50	3.330	0	89.8	24.2	109			
2-Chlorophenol	2.9	0.20	3.330	0	86.1	18.8	103			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	73.3	18.8	89.5			
2,4-Dinitrotoluene	1.3	0.50	1.670	0	77.6	20.2	94.5			
N-Nitrosodi-n-propylamine	1.4	0.20	1.670	0	84.8	19.2	96.9			
4-Nitrophenol	3.3	0.25	3.330	0	99.6	25	118			
Pentachlorophenol	2.7	0.40	3.330	0	82.2	24.1	107			
Phenol	3.2	0.20	3.330	0	95.0	17.8	112			
Pyrene	1.6	0.20	1.670	0	94.6	25.9	125			
1,2,4-Trichlorobenzene	1.4	0.20	1.670	0	81.8	18.5	92.8			
Surr: 2-Fluorophenol	2.5		3.330		75.4	20.3	74.1			S
Surr: Phenol-d5	3.1		3.330		93.2	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	3.1		3.330		92.7	17.3	122			
Surr: Nitrobenzene-d5	1.4		1.670		81.7	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.5		1.670		92.6	21.5	90.1			S
Surr: 4-Terphenyl-d14	1.7		1.670		99.9	15	140			

Sample ID: **MB-62017** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848811** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62017** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848811** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62017** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848811** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.2		3.330		66.5	20.3	74.1			
Surr: Phenol-d5	2.6		3.330		78.9	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.7		3.330		81.1	17.3	122			
Surr: Nitrobenzene-d5	1.1		1.670		64.9	24.7	73.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		74.7	21.5	90.1			
Surr: 4-Terphenyl-d14	1.5		1.670		89.1	15	140			

Sample ID: **LCS-62017** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	81.2	22.9	109			
4-Chloro-3-methylphenol	2.5	0.50	3.330	0	76.3	24.2	109			
2-Chlorophenol	2.6	0.20	3.330	0	76.7	18.8	103			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	69.5	18.8	89.5			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	65.1	20.2	94.5			
N-Nitrosodi-n-propylamine	1.2	0.20	1.670	0	72.2	19.2	96.9			
4-Nitrophenol	3.0	0.25	3.330	0	88.6	25	118			
Pentachlorophenol	2.6	0.40	3.330	0	79.1	24.1	107			
Phenol	2.8	0.20	3.330	0	83.3	17.8	112			
Pyrene	1.5	0.20	1.670	0	90.5	25.9	125			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	69.0	18.5	92.8			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **LCS-62017** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848812** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	2.3		3.330		68.6	20.3	74.1			
Surr: Phenol-d5	2.7		3.330		80.7	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.7		3.330		82.4	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		69.9	24.7	73.2			
Surr: 2-Fluorobiphenyl	1.3		1.670		75.5	21.5	90.1			
Surr: 4-Terphenyl-d14	1.5		1.670		90.8	15	140			

Sample ID: **2108721-021AMS** SampType: **MS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **RCR-SB4 (5')** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848823** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.67	0.19	1.563	0	42.6	24.8	111			
4-Chloro-3-methylphenol	1.5	0.47	3.116	0	47.4	40.7	97.8			
2-Chlorophenol	1.5	0.19	3.116	0	47.8	21.2	91.6			
1,4-Dichlorobenzene	0.38	0.19	1.563	0	24.1	17.8	74.2			
2,4-Dinitrotoluene	0.34	0.47	1.563	0	21.7	36.5	81.5			JS
N-Nitrosodi-n-propylamine	0.67	0.19	1.563	0	43.0	25.5	85.2			
4-Nitrophenol	2.0	0.23	3.116	0	64.8	15	143			
Pentachlorophenol	2.3	0.37	3.116	0	72.8	15	116			
Phenol	1.6	0.19	3.116	0	50.7	24.8	94.5			
Pyrene	1.1	0.19	1.563	0	72.2	42	112			
1,2,4-Trichlorobenzene	0.50	0.19	1.563	0	31.7	18.5	85.3			
Surr: 2-Fluorophenol	1.3		3.116		42.1	20.3	74.1			
Surr: Phenol-d5	1.5		3.116		49.6	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.0		3.116		65.7	17.3	122			
Surr: Nitrobenzene-d5	0.36		1.563		23.0	24.7	73.2			S
Surr: 2-Fluorobiphenyl	0.62		1.563		39.9	21.5	90.1			
Surr: 4-Terphenyl-d14	1.5		1.563		94.6	15	140			

Sample ID: **2108721-021AMSD** SampType: **MSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **RCR-SB4 (5')** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.67	0.19	1.597	0	42.0	24.8	111	0.762	20	
4-Chloro-3-methylphenol	1.5	0.48	3.185	0	45.9	40.7	97.8	1.01	20	
2-Chlorophenol	1.5	0.19	3.185	0	45.9	21.2	91.6	1.71	20	
1,4-Dichlorobenzene	0.39	0.19	1.597	0	24.3	17.8	74.2	2.83	20	
2,4-Dinitrotoluene	0.34	0.48	1.597	0	21.2	36.5	81.5	0.337	20	JS

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-021AMSD** SampType: **MSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **RCR-SB4 (5')** Batch ID: **62017** RunNo: **80749**
Prep Date: **8/17/2021** Analysis Date: **8/23/2021** SeqNo: **2848824** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodi-n-propylamine	0.66	0.19	1.597	0	41.5	25.5	85.2	1.58	20	
4-Nitrophenol	2.0	0.24	3.185	0	62.0	15	143	2.34	20	
Pentachlorophenol	2.3	0.38	3.185	0	71.0	15	116	0.316	20	
Phenol	1.5	0.19	3.185	0	47.4	24.8	94.5	4.69	20	
Pyrene	1.3	0.19	1.597	0	82.0	42	112	14.9	20	
1,2,4-Trichlorobenzene	0.54	0.19	1.597	0	34.0	18.5	85.3	9.17	20	
Surr: 2-Fluorophenol	1.3		3.185		42.0	20.3	74.1	0	0	
Surr: Phenol-d5	1.5		3.185		47.3	23.1	92.7	0	0	
Surr: 2,4,6-Tribromophenol	1.9		3.185		60.6	17.3	122	0	0	
Surr: Nitrobenzene-d5	0.33		1.597		20.8	24.7	73.2	0	0	S
Surr: 2-Fluorobiphenyl	0.58		1.597		36.6	21.5	90.1	0	0	
Surr: 4-Terphenyl-d14	1.5		1.597		95.4	15	140	0	0	

Sample ID: **mb-62052** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62052** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62052** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850014** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.7		3.330		80.0	20.3	74.1			S
Surr: Phenol-d5	3.2		3.330		95.9	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	2.8		3.330		84.2	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		74.9	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.5		1.670		88.0	21.5	90.1			
Surr: 4-Terphenyl-d14	2.2		1.670		130	15	140			

Sample ID: **lcs-62052** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850039** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.5	0.20	1.670	0	90.9	22.9	109			
4-Chloro-3-methylphenol	2.8	0.50	3.330	0	84.8	24.2	109			
2-Chlorophenol	2.9	0.20	3.330	0	86.9	18.8	103			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	68.9	18.8	89.5			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	73.3	20.2	94.5			
N-Nitrosodi-n-propylamine	1.4	0.20	1.670	0	81.8	19.2	96.9			
4-Nitrophenol	3.2	0.25	3.330	0	95.7	25	118			
Pentachlorophenol	2.6	0.40	3.330	0	78.1	24.1	107			
Phenol	3.1	0.20	3.330	0	94.3	17.8	112			
Pyrene	1.6	0.20	1.670	0	97.8	25.9	125			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	73.6	18.5	92.8			
Surr: 2-Fluorophenol	2.4		3.330		73.2	20.3	74.1			
Surr: Phenol-d5	3.1		3.330		93.2	23.1	92.7			S
Surr: 2,4,6-Tribromophenol	3.0		3.330		88.9	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		76.1	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		86.2	21.5	90.1			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **lcs-62052** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62052** RunNo: **80773**
Prep Date: **8/18/2021** Analysis Date: **8/24/2021** SeqNo: **2850039** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	2.1		1.670		128	15	140			

Sample ID: **mb-62082** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62082** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.50								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodimethylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb-62082** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850040** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	2.3		3.330		70.2	20.3	74.1			
Surr: Phenol-d5	2.8		3.330		85.0	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.6		3.330		78.3	17.3	122			
Surr: Nitrobenzene-d5	1.2		1.670		70.2	24.7	73.2			
Surr: 2-Fluorobiphenyl	1.4		1.670		81.3	21.5	90.1			
Surr: 4-Terphenyl-d14	1.6		1.670		95.3	15	140			

Sample ID: **lcs-62082** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **62082** RunNo: **80773**
Prep Date: **8/19/2021** Analysis Date: **8/24/2021** SeqNo: **2850041** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.20	1.670	0	84.9	22.9	109			
4-Chloro-3-methylphenol	2.6	0.50	3.330	0	78.2	24.2	109			
2-Chlorophenol	2.7	0.20	3.330	0	80.8	18.8	103			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	70.5	18.8	89.5			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	69.4	20.2	94.5			
N-Nitrosodi-n-propylamine	1.3	0.20	1.670	0	75.7	19.2	96.9			
4-Nitrophenol	3.1	0.25	3.330	0	92.8	25	118			
Pentachlorophenol	2.5	0.40	3.330	0	74.4	24.1	107			
Phenol	2.9	0.20	3.330	0	86.0	17.8	112			
Pyrene	1.6	0.20	1.670	0	94.5	25.9	125			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	76.3	18.5	92.8			
Surr: 2-Fluorophenol	2.4		3.330		72.0	20.3	74.1			
Surr: Phenol-d5	2.8		3.330		85.0	23.1	92.7			
Surr: 2,4,6-Tribromophenol	2.8		3.330		84.6	17.3	122			
Surr: Nitrobenzene-d5	1.3		1.670		75.2	24.7	73.2			S
Surr: 2-Fluorobiphenyl	1.4		1.670		81.8	21.5	90.1			
Surr: 4-Terphenyl-d14	1.7		1.670		100	15	140			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-62142** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851078** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-62142** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851079** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0075	0.033	0.006660	0	112	70	130			J

Sample ID: **LCS-61242** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851080** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	97.9	80	120			

Sample ID: **MB-61243** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851081** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-61243** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851082** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0074	0.033	0.006660	0	110	70	130			J

Sample ID: **LCS-61243** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851083** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	99.4	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **MB-61244** SampType: **MBLK** TestCode: **EPA Method 7471B: Mercury**
Client ID: **PBS** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851084** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: **LLLCS-61244** SampType: **LCSLL** TestCode: **EPA Method 7471B: Mercury**
Client ID: **BatchQC** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851085** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0070	0.033	0.006660	0	105	70	130			J

Sample ID: **LCS-61244** SampType: **LCS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **LCSS** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851086** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	101	80	120			

Sample ID: **2108721-002AMS** SampType: **MS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB1 (2.5')** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851164** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.37	0.17	0.1720	0.03518	194	80	120			S

Sample ID: **2108721-002AMSD** SampType: **MSD** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB1 (2.5')** Batch ID: **62142** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851165** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.60	0.18	0.1783	0.03518	316	80	120	47.6	20	RS

Sample ID: **2108721-025AMS** SampType: **MS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB5 (2.5')** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851167** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.35	0.16	0.1621	0.1421	128	80	120			S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-025AMSD** SampType: **MSD** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SB5 (2.5')** Batch ID: **62143** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851168** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.30	0.18	0.1779	0.1421	90.0	80	120	14.5	20	

Sample ID: **2108721-045AMS** SampType: **MS** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SS7 (0.5')** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851170** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.38	0.16	0.1569	0.1030	174	80	120			S

Sample ID: **2108721-045AMSD** SampType: **MSD** TestCode: **EPA Method 7471B: Mercury**
Client ID: **RCR-SS7 (0.5')** Batch ID: **62144** RunNo: **80802**
Prep Date: **8/23/2021** Analysis Date: **8/25/2021** SeqNo: **2851173** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.35	0.16	0.1606	0.1030	155	80	120	6.39	20	S

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2.5ug gro lcs 2** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841781** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.4	70	130			
Surr: BFB	480		500.0		95.6	70	130			

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841782** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.3	70	130			
Surr: BFB	490		500.0		97.8	70	130			

Sample ID: **mb 2** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2841783** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		98.0	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841784** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		97.4	70	130			

Sample ID: **2108721-001ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (0')** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841786** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	4.4	21.99	0	97.8	64.4	124			
Surr: BFB	430		439.8		97.2	70	130			

Sample ID: **2108721-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (0')** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841787** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-001amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (0')** Batch ID: **B80534** RunNo: **80534**
Prep Date: Analysis Date: **8/16/2021** SeqNo: **2841787** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.4	21.99	0	92.3	64.4	124	5.81	20	
Surr: BFB	430		439.8		97.6	70	130	0	0	

Sample ID: **2108721-024ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (0')** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2841808** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	4.6	23.19	0	91.0	64.4	124			
Surr: BFB	430		463.8		93.0	70	130			

Sample ID: **2108721-024amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (0')** Batch ID: **C80534** RunNo: **80534**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2841809** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.6	23.19	0	87.1	64.4	124	4.36	20	
Surr: BFB	450		463.8		96.1	70	130	0	0	

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **G80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843168** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.9	70	130			
Surr: BFB	470		500.0		94.3	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **G80598** RunNo: **80598**
Prep Date: Analysis Date: **8/17/2021** SeqNo: **2843169** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		98.7	70	130			

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844924** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844924** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.9	70	130			
Surr: BFB	470		500.0		93.4	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844925** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	470		500.0		93.6	70	130			

Sample ID: **2108721-028ams** SampType: **MS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (7.5')** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844928** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	340	16	81.06	268.7	90.5	64.4	124			
Surr: BFB	1500		1621		93.9	70	130			

Sample ID: **2108721-028amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB5 (7.5')** Batch ID: **B80646** RunNo: **80646**
Prep Date: Analysis Date: **8/18/2021** SeqNo: **2844929** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	330	16	81.06	268.7	76.6	64.4	124	3.35	20	
Surr: BFB	1500		1621		93.6	70	130	0	0	

Sample ID: **2.5ug gro lcs** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **B80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846496** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.4	70	130			
Surr: BFB	480		500.0		95.8	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **B80682** RunNo: **80682**
Prep Date: Analysis Date: **8/19/2021** SeqNo: **2846497** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **mb**	SampType: **MBLK**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **PBS**	Batch ID: **B80682**	RunNo: **80682**							
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846497**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		96.8	70	130			

Sample ID: **2108721-050ams**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **RCR-SS9 (1')**	Batch ID: **B80682**	RunNo: **80682**							
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846501**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	18	3.9	19.34	0	93.1	64.4	124			
Surr: BFB	360		386.7		93.4	70	130			

Sample ID: **2108721-050amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **RCR-SS9 (1')**	Batch ID: **B80682**	RunNo: **80682**							
Prep Date:	Analysis Date: **8/19/2021**	SeqNo: **2846502**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	17	3.9	19.34	0	87.4	64.4	124	6.25	20	
Surr: BFB	360		386.7		92.6	70	130	0	0	

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **LCSS**	Batch ID: **G80737**	RunNo: **80737**							
Prep Date:	Analysis Date: **8/24/2021**	SeqNo: **2848433**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.6	70	130			
Surr: BFB	530		500.0		106	70	130			

Sample ID: **2108721-003ams**	SampType: **MS**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **RCR-SB1 (4')**	Batch ID: **62009**	RunNo: **80737**							
Prep Date: **8/16/2021**	Analysis Date: **8/23/2021**	SeqNo: **2848435**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	54	4.8	23.90	9.606	184	64.4	124			S
Surr: BFB	670		478.0		140	70	130			S

Sample ID: **2108721-003amsd**	SampType: **MSD**	TestCode: **EPA Method 8015D Mod: Gasoline Range**							
Client ID: **RCR-SB1 (4')**	Batch ID: **62009**	RunNo: **80737**							
Prep Date: **8/16/2021**	Analysis Date: **8/23/2021**	SeqNo: **2848436**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **2108721**
13-Sep-21

Client: Marathon
Project: Railcar Release Investigation

Sample ID: **2108721-003amsd** SampType: **MSD** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **RCR-SB1 (4')** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848436** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	51	4.9	24.30	9.606	169	64.4	124	5.75	20	S
Surr: BFB	580		485.9		118	70	130	0	0	

Sample ID: **lcs-62009** SampType: **LCS** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **LCSS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848444** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	70	130			
Surr: BFB	520		500.0		105	70	130			

Sample ID: **mb** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **G80737** RunNo: **80737**
Prep Date: Analysis Date: **8/24/2021** SeqNo: **2848445** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	510		500.0		102	70	130			

Sample ID: **mb-62009** SampType: **MBLK** TestCode: **EPA Method 8015D Mod: Gasoline Range**
Client ID: **PBS** Batch ID: **62009** RunNo: **80737**
Prep Date: **8/16/2021** Analysis Date: **8/23/2021** SeqNo: **2848446** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	520		500.0		105	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: **Marathon** Work Order Number: **2108721** RcptNo: 1

Received By: **Juan Rojas** **8/13/2021 3:37:00 PM**

Completed By: **Desiree Dominguez** **8/13/2021 3:41:06 PM**

Reviewed By: SGL 8/13/21

Chain of Custody

1. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2. How was the sample delivered?	Courier		

Log In

3. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
5. Sample(s) in proper container(s)?	Yes ☑	No ☐	
6. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
7. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
8. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA?	Yes ☑	No ☐	NA ☐
10. Were any sample containers received broken?	Yes ☐	No ☑	
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

# of preserved bottles checked for pH:

(<2 or >12 unless noted)

Adjusted?

Checked by: JR/KPG/TMC 8/13/21

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: Date:

By Whom: Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding:

Client Instructions:

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.7	Good				
2	1.8	Good				
3	5.0	Good				
4	5.2	Good				

Released to Imaging: 8/16/2024 8:11:41 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamestown NM,87301

Phone #: 808-640-1823

Email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
NELAC ☐ Other

EDD (Type)

X Standard ☐ Rush

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ~~☐ Yes~~ ☐ No

# of Coolers: 5

Cooler Temp(including CF): See checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/11/2021	10:00	Soil	RCR-SB1 (0')	3		-001	x	x	x	x	x	x
8/11/2021	10:05	Soil	RCR-SB1 (2.5')	3		-002	x	x	x	x	x	x
8/11/2021	10:10	Soil	RCR-SB1 (4')	3		-003	x	x	x	x	x	x
8/11/2021	10:12	Soil	RCR-SB1 (5')	3		-004	x	x	x	x	x	x
8/11/2021	10:15	Soil	RCR-SB1 (7.5')	3		-005	x	x	x	x	x	x
8/11/2021	10:20	Soil	RCR-SB1 (8')	3		-006	x	x	x	x	x	x
8/11/2021	11:30	Soil	RCR-SB2 (0')	3		-007	x	x	x	x	x	x
8/11/2021	11:35	Soil	RCR-SB2 (2')	3		-008	x	x	x	x	x	x
8/11/2021	11:40	Soil	RCR-SB2 (2.5')	3		-009	x	x	x	x	x	x
8/11/2021	11:45	Soil	RCR-SB2 (5')	3		-010	x	x	x	x	x	x
8/11/2021	11:50	Soil	RCR-SB2 (7.5')	3		-011	x	x	x	x	x	x
8/11/2021	11:55	Soil	RCR-SB2 (8')	3		-012	x	x	x	x	x	x

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		Courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/7/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamesto NM,87301

Phone #: 808-640-1823

Email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation:
☐ Az Compliance
☐ NELAC ☐ Other

EDD (Type)

X Standard ☐ Rush

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☐ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): see checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM									
8/11/2021	12:40	Soil	RCR-SB3 (0')	3		-013	x	x	x	x	x	x									
8/11/2021	12:45	Soil	RCR-SB3 (2.5')	3		-014	x	x	x	x	x	x									
8/11/2021	12:50	Soil	RCR-SB3 (5')	3		-015	x	x	x	x	x	x									
8/11/2021	12:55	Soil	RCR-SB3 (7.5')	3		-016	x	x	x	x	x	x									
8/11/2021	13:00	Soil	RCR-SB3 (8')	3		-017	x	x	x	x	x	x									
8/11/2021	14:00	Soil	RCR-SB4 (0')	3		-018	x	x	x	x	x	x									
8/11/2021	14:03	Soil	RCR-SB4 (2')	3		-019	x	x	x	x	x	x									
8/11/2021	14:05	Soil	RCR-SB4 (2.5')	3		-020	x	x	x	x	x	x									
8/12/2021	7:40	Soil	RCR-SB4 (5')	3		-021	x	x	x	x	x	x									
8/11/2021	14:15	Soil	RCR-SB4 (7.5')	3		-022	x	x	x	x	x	x									
8/11/2021	14:20	Soil	RCR-SB4 (8')	3		-023	x	x	x	x	x	x									
				3			x	x	x	x	x	x									

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/29/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamestown NM,87301

Phone #: 808-640-1823

email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

X EDD (Type)

X Standard ☐ Rush

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☐ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): See checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/11/2021	15:30	Soil	RCR-SB5 (0')	3		-024	x	x	x	x	x	x
8/11/2021	15:35	Soil	RCR-SB5 (2.5')	3		-025	x	x	x	x	x	x
8/11/2021	15:40	Soil	RCR-SB5 (4')	3		-026	x	x	x	x	x	x
8/11/2021	15:42	Soil	RCR-SB5 (5')	3		-027	x	x	x	x	x	x
8/11/2021	15:45	Soil	RCR-SB5 (7.5')	3		-028	x	x	x	x	x	x
8/11/2021	15:50	Soil	RCR-SB5 (8')	3		-029	x	x	x	x	x	x
8/11/2021	16:15	Soil	RCR-SB6 (0')	3		-030	x	x	x	x	x	x
8/11/2021	16:20	Soil	RCR-SB6 (2.5')	3		-031	x	x	x	x	x	x
8/11/2021	16:25	Soil	RCR-SB2 (3')	3		-032	x	x	x	x	x	x
			MeOH Blank 1			-063						
			MeOH Blank 2			-064						
			MeOH Blank 3			-065						

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		Courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/16/2024 3:11:43 PM

Chain of Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Client: Marathon Gallup Refinery	X Standard ☐ Rush
	Project Name: Railcar Release Investigation
Mailing Address: 92 Giant Crossing Road, Jamesto NM,87301	Project #: 697-089-001
Phone #: 808-640-1823	Project Manager: Emily Conkling/Brian McLoughlin
email or Fax#:	Sampler:
QA/QC Package: X Standard ☐ Level 4 (Full Validation)	On Ice: ☑ Yes ☐ No
Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other	# of Coolers: 5
☐ EDD (Type)	Cooler Temp(including CF): See Checklist

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D)	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/12/2021	8:00	Soil	RCR-SS1 (0.5')	3		-033	x	x	x	x	x	x
8/12/2021	8:05	Soil	RCR-SS1 (1')	3		-034	x	x	x	x	x	x
8/12/2021	8:10	Soil	RCR-SS2 (0.5')	3		-035	x	x	x	x	x	x
8/12/2021	8:15	Soil	RCR-SS2 (1')	3		-036	x	x	x	x	x	x
8/12/2021	8:20	Soil	RCR-SS3 (0.5')	3		-037	x	x	x	x	x	x
8/12/2021	8:25	Soil	RCR-SS3 (1')	3		-038	x	x	x	x	x	x
8/12/2021	8:30	Soil	RCR-SS4 (0.5')	3		-039	x	x	x	x	x	x
8/12/2021	8:35	Soil	RCR-SS4 (1')	3		-040	x	x	x	x	x	x
8/12/2021	8:40	Soil	RCR-SS5 (0.5')	3		-041	x	x	x	x	x	x
8/12/2021	8:45	Soil	RCR-SS5 (1')	3		-042	x	x	x	x	x	x
8/12/2021	8:50	Soil	RCR-SS6 (0.5')	3		-043	x	x	x	x	x	x
8/12/2021	8:55	Soil	RCR-SS6 (1')	3		-044	x	x	x	x	x	x

Analysis Request

Date	Time:	Relinquished by:	Received by:	Via:	Date Time
8/13/21	8:00 AM	Brian McLoughlin		courier	8/13/21 15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Received by OCD: 2/29/2024 3:58:06 PM

Released to Imaging: 8/1/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamesto NM,87301

Phone #: 808-640-1823

Email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

☐ EDD (Type)

X Standard ☐ Rush

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☑ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): See check 1.5+

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/12/2021	9:10	Soil	RCR-SS7 (0.5')	3		-045	x	x	x	x	x	x
8/12/2021	9:15	Soil	RCR-SS7 (1')	3		-046	x	x	x	x	x	x
8/12/2021	9:20	Soil	RCR-SS8 (0.5')	3		-047	x	x	x	x	x	x
8/12/2021	9:25	Soil	RCR-SS8 (1')	3		-048	x	x	x	x	x	x
8/12/2021	9:30	Soil	RCR-SS9 (0.5')	3		-049	x	x	x	x	x	x
8/12/2021	9:35	Soil	RCR-SS9 (1')	3		-050	x	x	x	x	x	x
8/11/2021		Soil	RCR-BD1	3		-051	x	x	x	x	x	x
8/11/2021		Soil	RCR-BD2	3		-052	x	x	x	x	x	x
8/11/2021		Soil	RCR-BD3	3		-053	x	x	x	x	x	x
8/12/2021		Soil	RCR-BD4	3		-054	x	x	x	x	x	x
8/12/2021		Soil	RCR-BD5	3		-055	x	x	x	x	x	x
8/12/2021		Soil	RCR-BD6	3		-056	x	x	x	x	x	x

Analysis Request

Date	Time:	Relinquished by:	Received by:	Via:	Date Time
8/13/21	8:00 AM	Brian McLoughlin		Courier	8/13/21 15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Released to Imaging: 8/16/2024 3:11:43 PM

Received by OCD: 2/29/2024 3:58:06 PM

Chain of Custody Record

Client: Marathon Gallup Refinery

Mailing Address: 92 Giant Crossing Road
Jamesto NM,87301

Phone #: 808-640-1823

email or Fax#:

QA/QC Package:
X Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other

X EDD (Type)

X Standard ☐ Rush

Project Name:
Railcar Release Investigation

Project #:
697-089-001

Project Manager:
Emily Conkling/Brian McLoughlin

Sampler:

On Ice: ☐ Yes ☐ No

# of Coolers: 5

Cooler Temp(including CF): See checklist

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 2108721	TPH-DRO, Method 8015M/D	TPH-GRO, Method 8015D	VOCs, Method 8260B/1311	Total metals, Method 6020	Mercury, Method 7470	SVOCs, Method 827/8270SIM
8/11/2021	12:00	Soil	RCR-EB1	2		-057			x			
8/11/2021	16:00	Soil	RCR-EB2	2		-058			x			
8/11/2021	16:30	Soil	RCR-EB3	2		-059			x			
8/12/2021	8:05	Soil	RCR-EB4	2		-060			x			
8/12/2021	8:35	Soil	RCR-EB5	2		-061			x			
8/12/2021	9:35	Soil	RCR-EB6	2		-062			x			

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
8/13/21	8:00 AM	Brian McLoughlin		courier	8/13/21	15:37
Date:	Time:	Relinquished by:	Received by:	Via:	Date	Time

Remarks: Hold for TCLP

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Appendix C – Data Validation Report

Tier II Data Validation Report Summary

Client: Marathon Oil	Laboratory: Hall Environmental
Project Name: Railcar Release Investigation	Sample Matrix: Soil
Project Number: 697-089-001 Task: 0002	Sample Start Date: 08/11/2021
Date Validated: 10/06/2021	Sample End Date: 08/19/2021
Parameters Included: ▪ Volatile Organic Compounds (VOC) by Environmental Protection Agency (EPA) Test Methods for Evaluating Solid Waste (SW-846) Method 8260B ▪ Semivolatile Organic Compounds (SVOC) by SW-846 Method 8270C ▪ Polynuclear Aromatic Hydrocarbons (PAH) by SW-846 Method 8270D with Selected Ion Monitoring (SIM) ▪ Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) by SW-846 Method 8015D MOD ▪ TPH Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) by SW-846 Method 8015M/D ▪ Total Metals by SW-846 Method 6020 ▪ Total Mercury by SW-846 Method 7471 ▪ Percent Solids by Standard Methods for the Examination of Water and Wastewater (SM) Method 2540G	
Laboratory Project ID: 2108721 and 2108A86	
Data Validator: Daran O'Hollearn, Lead Project Scientist	
Reviewer: Mike Phillips, Senior Chemist	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services Group on the analytical data report packages generated by Hall Environmental Analysis Laboratory of Albuquerque, New Mexico, with additional data from Anatek Labs, Inc. of Moscow, Idaho evaluating samples from the Marathon Oil site, located in Gallup, New Mexico.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values from:

- Field duplicate pairs
- Matrix spike (MS) and matrix spike duplicate (MSD) pairs
- Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) pairs

Laboratory accuracy was established by reviewing the demonstrated percent recoveries (%R) of the following items to verify that data are not biased.

- MS/MSD samples
- LCS/LCSD samples
- Organic system monitoring compounds (surrogates)

Field accuracy was established by collecting and analyzing the following samples to monitor for possible ambient or cross contamination during sampling and transportation.

- Trip blanks
- Equipment blanks

Tier II Data Validation Report Summary

Method compliance was established by reviewing sample integrity, holding times, detection limits, surrogate recoveries, laboratory blanks, initial and continuing calibrations (where applicable), and the LCS/LCSD percent recoveries against method-specific requirements.

Completeness was evaluated by determining the overall ratio of the number of samples and analyses planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody (CoC), laboratory analytical methods, and other laboratory and field documents associated with this analytical data set.

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
Data Set 2108721	
RCR-SB1 (0')	2108721-001a
RCR-SB1 (2.5')	2108721-002a
RCR-SB1 (4')	2108721-003a
RCR-SB1 (5')	2108721-004a
RCR-SB1 (7.5')	2108721-005a
RCR-SB1 (8')	2108721-006a
RCR-SB2 (0')	2108721-007a
RCR-SB2 (2')	2108721-008a
RCR-SB2 (2.5')	2108721-009a
RCR-SB2 (5')	2108721-010a
RCR-SB2 (7.5')	2108721-011a
RCR-SB2 (8')	2108721-012a
RCR-SB3 (0')	2108721-013a
RCR-SB3 (2.5')	2108721-014a
RCR-SB3 (5')	2108721-015a
RCR-SB3 (7.5')	2108721-016a
RCR-SB3 (8')	2108721-017a
RCR-SB4 (0')	2108721-018a
RCR-SB4 (2')	2108721-019a
RCR-SB4 (2.5')	2108721-020a
RCR-SB4 (5')	2108721-021a
RCR-SB4 (7.5')	2108721-022a
RCR-SB4 (8')	2108721-023a
RCR-SB5 (0')	2108721-024a
RCR-SB5 (2.5')	2108721-025a
RCR-SB5 (4')	2108721-026a
RCR-SB5 (5')	2108721-027a

Tier II Data Validation Report Summary

Client Sample ID	Laboratory Sample Number
RCR-SB5 (7.5')	2108721-028a
RCR-SB5 (8')	2108721-029a
RCR-SB6 (0')	2108721-030a
RCR-SB6 (2.5')	2108721-031a
RCR-SB6 (3')	2108721-032a
RCR-SS1 (0.5')	2108721-033a
RCR-SS1 (1')	2108721-034a
RCR-SS2 (0.5')	2108721-035a
RCR-SS2 (1')	2108721-036a
RCR-SS3 (0.5')	2108721-037a
RCR-SS3 (1')	2108721-038a
RCR-SS4 (0.5')	2108721-039a
RCR-SS4 (1')	2108721-040a
RCR-SS5 (0.5')	2108721-041a
RCR-SS5 (1')	2108721-042a
RCR-SS6 (0.5')	2108721-043a
RCR-SS6 (1')	2108721-044a
RCR-SS7 (0.5')	2108721-045a
RCR-SS7 (1')	2108721-046a
RCR-SS8 (0.5')	2108721-047a
RCR-SS8 (1')	2108721-048a
RCR-SS9 (0.5')	2108721-049a
RCR-SS9 (1')	2108721-050a
RCR-BD1	2108721-051a
RCR-BD2	2108721-052a
RCR-BD3	2108721-053a
RCR-BD4	2108721-054a
RCR-BD5	2108721-055a
RCR-BD6	2108721-056a
RCR-EB1	2108721-057a
RCR-EB2	2108721-058a
RCR-EB3	2108721-059a
RCR-EB4	2108721-060a
RCR-EB5	2108721-061a
RCR-EB6	2108721-062a

Tier II Data Validation Report Summary

Client Sample ID	Laboratory Sample Number
MeOH Blank 1	2108721-063
MeOH Blank 2	2108721-064
MeOH Blank 3	2108721-065
Data Set 2108A86	
RCR-SS10 (0.5')	2108A86-001
RCR-SS10 (1')	2108A86-002
RCR-SS11 (0.5')	2108A86-003
RCR-SS11 (1')	2108A86-004
RCR-BD7	2108A86-005
RCR-EB7	2108A86-006

Tier II Data Validation Report Summary

The laboratory data were reviewed to evaluate compliance with the methods and the quality of the reported data. Assessment of CoC completeness is included in Item 3 of the Data Validation Checklist. A check mark (✓) indicates that the referenced validation criteria were deemed acceptable, whereas a crossed circle (⊗) indicates validation criteria for which the data have been qualified by the data validator. An empty circle (○) indicates that the specified criterion does not apply to the reviewed data. Details are noted in the tables below.

Validation Criteria

- ✓ Data Completeness
- ✓ CoC Documentation (Item 3)
- ✓ Holding Times and Preservation (Items 6 and 7)
- ○ Initial and Continuing Calibrations (Items 9 and 10)
- ✓ Laboratory Blanks (Items 11 and 12)
- ⊗ MS/MSD (Items 13 and 14)
- ⊗ LCS/LCSD (Items 15 and 16)
- ⊗ System Monitoring Compounds (i.e., Surrogates) (Item 17)
- ⊗ Equipment and Trip Blanks (Items 18 and 19)
- ⊗ Field Duplicates (Items 20 and 21)
- ○ Laboratory Duplicates (Item 22)
- ✓ Data Relationships (Item 23)

Guidance References

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for the analyses listed below, or by the appropriate method if not covered in the National Functional Guidelines.

- Data for organic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review, document number EPA-540-R-20-005, November 2020 with additional reference to the USEPA CLP National Functional Guidelines for Organic Data Review, document number EPA 540/R-99/008, October 1999.
- Data for inorganic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, document number EPA-542-R-20-006, November 2020 with additional reference to the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540-R-04-004, October 2004.
- Review of field duplicates was conducted according to the USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.
- Trihydro Data Validation Variance Documentation, February 2021.

Tier II Data Validation Report Summary

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Item 2 of the Validation Criteria Checklist.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data that are not qualified meet the site data quality objectives. If values are assigned qualifiers other than an R (rejected, data not usable), the data may be used for site evaluation; however, consideration should be given to the reasons for qualification when interpreting sample concentrations. Data points that are assigned an R qualifier should not be used for site evaluation purposes.

If applicable, text was identified in **bold font** in the Validation Criteria Checklist to indicate that further action and/or qualification of the data were required. Data may have been qualified with J data flags by the laboratory if the result was greater than or equal to the method detection limit (MDL) but less than the reporting limit (RL). These laboratory-applied J flags were preserved, if present, and included in the Data Qualification Summary table at the end of this report. If applicable, data validation qualifiers were added for the items noted with crossed circles in the Validation Criteria section above. Please see the Data Qualification Summary table at the end of this report for a complete list of samples and analytes qualified.

If data would be qualified with more than one flag, one qualifier was assigned based on the severity; however, all reasons for qualification were retained. Data that would be qualified with both J+ and J- flags were evaluated based on validation criteria and assigned the appropriate flag. The hierarchy of qualifiers from the most to least severe is as follows:

- R > JB/U > NJ > J+/J- > J/UJ

Data qualifiers used during this validation are included in the following table.

Qualifier	Definition
J	Estimated concentration
J+	The result is an estimated concentration, but may be biased high
J-	The result is an estimated concentration, but may be biased low
UJ	Estimated reporting limit
U	Evaluated to be undetected at the reporting limit

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly unless otherwise noted in the Criteria Checklist below. The complete combined data package consisted of 10,065 data points. The data completeness calculation does not include any submitted blank sample results. Data points were not rejected. The data completeness measure for this data package is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECKLIST	
1. Was the report free of non-conformances identified by the laboratory?	Yes
Comments: The laboratory did not report non-conformances related to the analytical data for this sample set.	
2. Were the data free of data qualification flags and/or notes used by the laboratory? If no, define.	No
Comments: The laboratory used the following data qualification flags with this data set. D – Sample diluted due to matrix. J – Analyte detected below quantitation limits. R – %RPD outside laboratory limits S – % Recovery outside of range due to dilution or matrix.	
3. Were sample CoC forms and custody procedures complete?	Yes
Comments: The CoC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt. Custody seals were not present or required since the samples were delivered to the laboratory by a laboratory courier, and custody was maintained at all times.	

VALIDATION CRITERIA CHECKLIST

4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable? Yes

Comments: The reporting limits for the data set were reviewed and appeared to be acceptable. The following dilutions were applied to the project samples.

Method	Sample(s)	Analyte(s)	Dilution Factor
6020	RCR-SB4 (2.5')	Multiple Metals	2
8015	Multiple Samples	GRO	2
8015	Multiple Samples	DRO and MRO	2
8260B	Multiple Samples	VOC	2
6020	RCR-SB3 (7.5'), RCR-SB3 (8')	Chromium and Lead	4
6020	Multiple Samples	Multiple Metals	5
7471	Multiple Samples	Mercury	5
8015	Multiple Samples	GRO	5
8015	RCR-SB4 (2.5'), RCR-SB6 (0'), RCR-SS5 (1')	DRO and MRO	5
8260B	Multiple Samples	VOC	5
6020	Multiple Samples	Select Metals	10
8015	RCR-SB6 (3')	GRO	10
8015	Multiple Samples	DRO and MRO	10
8260B	RCR-SB2 (2.5'), RCR-SB6 (3'), RCR-SS4 (1')	Select VOC	10
8270C	Multiple Samples	SVOC	10
6020	Multiple Samples	Select Metals	20
8015	Multiple Samples	DRO and MRO	20
8270C	Multiple Samples	SVOC	20
6020	RCR-SB2 (0'), RCR-SS3 (0.5')	Select Metals	50
8015	RCR-SS3 (1'), RCR-BD3, RCR-BD5	GRO	50
8015	RCR-SB5 (5'), RCR-BD1, RCR-BD3	DRO and MRO	50
8260B	Multiple Samples	Select VOC	50
Method	Sample(s)	Analyte(s)	Dilution Factor
8270C	Multiple Samples	SVOC	50
6020	RCR-SS10 (1'), RCR-BD7	Barium	80
6020	Multiple Samples	Barium	100
8015	RCR-SB2 (2')	DRO and MRO	100
8260B	RCR-SB6 (3')	1-Methylnaphthalene, 2-Methylnaphthalene	100
8270C	Multiple Samples	SVOC	100
6020	Multiple Samples	Select Metals	200
6020	Multiple Samples	Barium	500

VALIDATION CRITERIA CHECKLIST

5. Were the reported analytical methods and constituents in compliance with the QAPP, permit, or CoC? — No

Comments: The reported analytical methods were in compliance with the CoC, and the laboratory reported the requested constituents in accordance with the CoC, with the following exceptions.

The CoC requested mercury using Method 7470; however, the laboratory report states that the laboratory used Method 7471B for the mercury analyses. In addition, the electronic data deliverables (EDD) provided by the laboratory indicate that Method 7471 was used for the mercury analyses. The substituted analytical method met similar sensitivity, accuracy, and precision goals and was, therefore, an acceptable replacement.

6. Were samples received in good condition within method-specified requirements? — No

Comments: Samples were received on ice, in good condition, and with the cooler temperatures both within and outside the recommended temperature range of 4°C ± 2°C at 1.8°C, 5.0°C, 5.2°C, and 5.7°C as noted on the *Sample Log-in Check Lists*. Samples transferred to Anatek were received in good condition with the cooler temperatures both within and outside the recommended range at 0.9°C, 3.0°C, and 4.7°C and as noted on the *Sample Receipt and Preservation Forms*. The cooler temperatures below 2.0°C were judged as acceptable since the laboratory did not report the sample containers as broken or frozen.

7. Were samples extracted/digested and analyzed within method-specified or technical holding times? — Yes

Comments: The samples were digested/extracted and analyzed within method-specific holding times.

8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Specify if wet or dry units were used for soil. — Yes

Comments: The results were reported in concentration units of micrograms per liter (µg/L) and milligrams per kilogram (mg/kg), which were acceptable for the sample matrix and the analyses requested. The results for the soil samples were reported on a dry weight basis for Method 8270D. The remaining results for the soil samples were reported on a wet weight basis.

9. Did the laboratory provide any specific initial and/or continuing calibration results? — No

Comments: Initial and continuing calibration data were not included as part of this data set.

10. If initial and/or continuing calibration results were provided, were the results within acceptable limits? — N/A

Comments: Initial and continuing calibration data were not included as part of this data set.

11. Was the total number of laboratory blank samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method? — Yes

Comments: The total number of laboratory blank samples prepared was equal to at least 5% of the total number of samples.

12. Were target analytes reported as not detected in the laboratory blanks? — No

Comments: Target analytes were reported as not detected in the laboratory blanks, with the following exceptions.

Method	Analyte	Batch	Concentration
8270C	Di-n-butyl phthalate	61996	0.31 mg/kg
8015D	GRO	62159	1.5 mg/kg

Non-detections of the identified analytes in the associated samples did not require qualification.

VALIDATION CRITERIA CHECKLIST

13. Was the total number of MS samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method? Yes

Comments: The total number of matrix spike samples prepared was equal to at least 5% of the total number of samples, although MS samples were not prepared for all analyses and/or batches. The matrix spike sample source for each analytical batch in this sample set has been indicated below.

Method	Analytes	Batch	MS Sample Source
6020	Metals	62061	Not Prepared
6020	Metals	62062	Not Prepared
6020	Metals	62063	Not Prepared
6020	Metals	62196	RCR-SS10 (0.5')
7471	Mercury	62142	RCR-SB1 (2.5')
7471	Mercury	62143	RCR-SB5 (2.5')
7471	Mercury	62144	RCR-SS7 (0.5')
7471	Mercury	62297	Not Prepared
8015D MOD	GRO	62009	RCR-SB1 (4')
8015D MOD	GRO	B80534	RCR-SB1 (0')
8015D MOD	GRO	B80646	RCR-SB5 (7.5)
8015D MOD	GRO	B80682	RCR-SS9 (1')
8015D MOD	GRO	C80534	RCR-SB5 (0')
8015D MOD	GRO	G80598	Not Prepared
8015D MOD	GRO	G80737	Not Prepared
8015D MOD	GRO	R80646	Not Prepared
8015D MOD	GRO	R80682	Not Prepared
8015D MOD	GRO	62159	Not Prepared
8015D MOD	GRO	B80915	RCR-SS10 (1')
8015M/D	DRO	61999	RCR-SB1 (0')
8015M/D	DRO	62000	RCR-SB4 (5')
8015M/D	DRO	62016	Not Prepared
8015M/D	DRO	62104	Not Prepared
8260B	VOCs	62009	RCR-SB1 (5')
8260B	VOCs	A80534	RCR-SB1 (2.5')
8260B	VOCs	A80598	RCR-SB3 (7.5')
Method	Analytes	Batch	MS Sample Source
8260B	VOCs	A80646	RCR-SB5 (8')
8260B	VOCs	A80682	RCR-BD1
8260B	VOCs	B80573	Not Prepared
8260B	VOCs	R80598	Not Prepared
8260B	VOCs	R80607	Not Prepared
8260B	VOCs	R80646	Not Prepared
8260B	VOCs	R80682	Not Prepared
8260B	VOCs	R80737	Not Prepared
8260B	VOCs	62159	Not Prepared

VALIDATION CRITERIA CHECKLIST

Method	Analytes	Batch	MS Sample Source
8260B	VOCs	A80915	RCR-SS11 (0.5')
8260B	VOCs	R80700	Not Prepared
8270C	SVOCs	61996	Not Prepared
8270C	SVOCs	62017	RCR-SB4 (5')
8270C	SVOCs	62052	Not Prepared
8270C	SVOCs	62082	Not Prepared
8270C	SVOCs	62157	Not Prepared
8270D SIM	SVOCs	R81394	Not Prepared
8270D SIM	SVOCs	R81398	RCR-SB4 (5'), RCR-SS6 (0.5')
8270D SIM	SVOCs	R81306	RCR-SS10 (1')

Not Prepared – Matrix spikes were not prepared for this batch.

14. For MS/MSDs prepared from project samples, were percent recoveries and RPDs within data validation or laboratory quality control (QC) limits? No

Comments: The percent recoveries and RPDs for the MS/MSDs prepared from a project sample were within laboratory QC limits, with the following exceptions.

Method	Analyte	Batch	MS Recovery	MSD Recovery	MS/MSD QC Limits	MS/MSD RPD	RPD QC Limits
8270C	**2,4-Dinitrotoluene**	**62017**	**21.7%**	**21.2%**	**36.5-81.5%**	**Acceptable**	**20%**
7471B	**Mercury**	**62142**	**194%**	**316%**	**75-125%**	**47.6%**	**20%**
7471B	**Mercury**	**62143**	**128%**	**Acceptable**	**75-125%**	**Acceptable**	**20%**
7471B	**Mercury**	**62144**	**174%**	**155%**	**75-125%**	**Acceptable**	**20%**
8015D	**GRO**	**62009**	**184%**	**169%**	**64.4-124%**	**Acceptable**	**20%**

The analyte 2,4-dinitrotoluene was not detected in the associated samples. These results were qualified as UJ due to evidence of potential low bias.

Analytes with MS and/or MSD recoveries greater than the laboratory or data validation QC limits were detected in the associated samples, and the results were qualified as J+ to indicate estimated concentrations that may be biased high.

Mercury with a MS/MSD RPD value that was above the QC limit was detected in the associated samples. These results were qualified as J to indicate estimated concentrations due to evidence of poor precision.

15. Was the total number of LCSs analyzed equal to at least 5% of the total number of samples or analyzed as required by the method? Yes

Comments: The total number of LCS samples analyzed was equal to at least 5% of the total number of samples.

VALIDATION CRITERIA CHECKLIST

16. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within data validation or laboratory QC limits? No

Comments: The LCS and LCSD percent recoveries and LCS/LCSD RPD values were within laboratory QC limits, with the following exceptions.

Method	Analyte	Batch	LCS Recovery	LCS/LCSD QC Limits
6020	**Barium**	**62196**	**140%**	**70-130%**
6020	**Chromium**	**62196**	**140%**	**70-130%**
6020	**Chromium**	**62061**	**221%**	**70-130%**
7471B	**Mercury**	**62297**	**61.7%**	**70-130%**

The target analytes barium and chromium were detected in the associated samples, and these results were qualified as J+ based on the evidence of potential high bias.

Mercury was detected in the associated samples, and these results were qualified as J- due to evidence of potential low bias.

17. Were surrogate recoveries within laboratory QC limits? No

Comments: Surrogate recoveries in the analyses of the submitted samples were within laboratory QC limits, with the following exceptions.

Method	Surrogate	Sample	Surrogate Recovery	QC Limits
8260B	**4-Bromofluorobenzene**	**RCR-SB1 (4')**	**143%**	**70-130%**
8270C	Nitrobenzene-d_5	RCR-SB2 (7.5')	24.6%	24.7-73.2%
8270C	Nitrobenzene-d_5	RCR-SB4 (5')	22.7%	24.7-73.2%
8015M/D	**DNOP**	**RCR-SS5 (1')**	**131%**	**70-130%**

DRO and ORO were detected in sample RCR-SS5 (1'). DRO and ORO in sample RCR-SS5 (1') were qualified as J+ to indicate estimated concentrations that may be biased high.

Since Method 8260B surrogate associations were not available from the laboratory, qualification was assigned to all of the target analytes when one or more surrogates was outside the acceptance range. This condition existed for the sample RCR-SB1 (4'). The target analytes in sample RCR-SB1 (4') with a surrogate recovery that was greater than the upper laboratory QC limit were qualified as J+ if detected to indicate estimated concentrations that may be biased high. Qualification was not required for the non-detected analytes in the Method 8260B analysis of sample RCR-SB1 (4').

Since Method 8270C surrogate associations were not available from the laboratory, qualification was assigned to all of the target analytes in a given fraction (acid or base/neutral) when two or more surrogates from the same fraction (acid or base/neutral) were outside the acceptance range. This condition did not exist for the samples RCR-SB2 (7.5') and RCR-SB4 (5'). Qualification of sample data was not required.

The SVOC results for multiple samples were not qualified based on the surrogate non-conformances in the Method 8270C analyses since the applied dilutions of 10, 20, 50, and 100 times resulted in surrogate concentrations below routinely calibrated levels, and those results were deemed unreliable and possibly inaccurate.

The DRO and MRO results for multiple samples were not qualified based on the surrogate non-conformances in the Method 8015M/D analyses since the applied dilutions of 10, 20, 50, and 100 times resulted in surrogate concentrations below routinely calibrated levels, and those results were deemed unreliable and possibly inaccurate.

Qualification of sample data was not required based on surrogate non-conformances in QC samples as the environmental samples were evaluated based on their specific surrogate recoveries.

VALIDATION CRITERIA CHECKLIST

18. Were the number of trip blank, field blank, and/or equipment blank samples collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit? Yes

Comments: The number of trip, field, and equipment blanks collected was equal to at least 10% of the total number of samples. Three trip blank samples, MeOH Blank 1, MeOH Blank 2, and MeOH Blank 3, and seven equipment blank samples, RCR-EB1, RCR-EB2, RCR-EB3, RCR-EB4, RCR-EB5, RCR-EB6, and RCR-EB7, were collected as part of this sample set.

19. Were target analytes reported as not detected in the trip blank, field blank, and/or equipment blank samples? No

Comments: Target analytes were reported as not detected in the trip blank and equipment blank samples, with the following exceptions.

Blank Sample ID	Method	Analyte	Concentration
RCR-EB1	**8260B**	**2-Butanone**	**30 µg/L**
RCR-EB2	**8260B**	**2-Butanone**	**30 µg/L**
RCR-EB3	**8260B**	**2-Butanone**	**31 µg/L**
RCR-EB4	**8260B**	**2-Butanone**	**24 µg/L**
RCR-EB5	**8260B**	**2-Butanone**	**25 µg/L**
RCR-EB6	**8260B**	**2-Butanone**	**25 µg/L**
RCR-EB1	**8260B**	**2-Hexanone**	**2.4 µg/L**
RCR-EB2	**8260B**	**2-Hexanone**	**2.6 µg/L**
RCR-EB3	**8260B**	**2-Hexanone**	**2.8 µg/L**
RCR-EB4	**8260B**	**2-Hexanone**	**2.2 µg/L**
RCR-EB5	**8260B**	**2-Hexanone**	**2.2 µg/L**
RCR-EB6	**8260B**	**2-Hexanone**	**2.3 µg/L**
RCR-EB1	**8260B**	**Acetone**	**42 µg/L**
RCR-EB2	**8260B**	**Acetone**	**47 µg/L**
RCR-EB3	**8260B**	**Acetone**	**45 µg/L**
RCR-EB4	8260B	Acetone	37 µg/L
RCR-EB5	8260B	Acetone	38 µg/L
RCR-EB6	8260B	Acetone	39 µg/L

Detections of the identified analytes in the associated samples that were less than the blank results and/or less than the applicable reporting limits were assigned U qualifiers. Non-detections of the identified analytes in the associated samples did not require qualification.

VALIDATION CRITERIA CHECKLIST	
20. Was the number of field duplicates collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?	Yes

Comments: The number of field duplicates collected was equal to at least 10% of the number of samples.

- Sample RCR-BD1 was collected as a field duplicate of sample RCR-SB2 (2').
- Sample RCR-BD2 was collected as a field duplicate of sample RCR-SB5 (5').
- Sample RCR-BD3 was collected as a field duplicate of sample RCR-SB6 (3').
- Sample RCR-BD4 was collected as a field duplicate of sample RCR-SB4 (5').
- Sample RCR-BD5 was collected as a field duplicate of sample RCR-SS3 (0.5').
- Sample RCR-BD6 was collected as a field duplicate of sample RCR-SS9 (1').
- Sample RCR-BD7 was collected as a field duplicate of sample RCR-SS10 (1').

21. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?	No

Comment: As indicated in the Field Duplicate Summary Tables at the end of this report, field duplicate RPD values were within data validation QC limits of 0-30% for water samples, with the following exceptions.

Duplicate pair RCR-SB2 (2') / RCR-BD1: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB2 (2') and RCR-BD1.**

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(a)pyrene and benzo(g,h,i)perylene for the field duplicate pair RCR-SB2 (2') and RCR-BD1 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(a)pyrene and benzo(g,h,i)perylene were qualified as J and UJ for the duplicate and parent samples, respectively.

Duplicate pair RCR-SB5 (5') / RCR-BD2: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB5 (5') and RCR-BD2.**

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples

An RPD value could not be calculated for total lead for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, total lead was qualified as J and UJ for the parent and duplicate samples, respectively.

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Duplicate pair RCR-SB6 (3') / RCR-BD3: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB-6 (3') and RCR-BD3.**

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

VALIDATION CRITERIA CHECKLIST	
An RPD value could not be calculated for benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene for the field duplicate pair RCR-SB-6 (3') and RCR-BD3 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene were qualified as J and UJ for the duplicate and parent samples, respectively. Duplicate pair RCR-SB4 (5') / RCR-BD4: **An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB4 (5') and RCR-BD4 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.** Duplicate pair RCR-SS3 (0.5') / RCR-BD5: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS3 (0.5') and RCR-BD5.** The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples. **An RPD value could not be calculated for benzo(g,h,i)perylene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, benzo(g,h,i)perylene was qualified as J and UJ for the duplicate and parent samples, respectively.** **An RPD value could not be calculated for fluorene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, fluorene was qualified as J and UJ for the parent and duplicate samples, respectively.** Duplicate pair RCR-SS9 (1') / RCR-BD6: **The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS9 (1') and RCR-BD6.** The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples. **An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SS9 (1') and RCR-BD6 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.** Duplicate pair RCR-SS10 (1') / RCR-BD7: **The RPD value for total mercury greatly exceeded the data validation limit of 50% at 151.1%. The total mercury results were qualified as J for the parent and duplicate samples, RCR-SS10 (1') and RCR-BD7, as well as the remaining associated samples based on evidence of extremely poor precision (RPD > 100%).**
22. For laboratory duplicates prepared from project samples, were RPDs within laboratory QC limits?	N/A
Comments: Laboratory duplicates were not prepared for the analyses in this data set.	

VALIDATION CRITERIA CHECKLIST	
23. Were the following data relationships realistic and acceptable?	
• Target analytes were reported by more than one method (e.g., 8260/8270, EPH/8270), and the results were in agreement?	Yes
Comments: Analytical results for 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, and hexachlorobutadiene were reported by both Method 8260B and 8270C. The results for these analytes were reported as not detected by both methods. Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were reported by Method 8260B, Method 8270C, and Method 8270D SIM for the submitted samples. The remaining PAHs were reported by Method 8270C and Method 8270D SIM. The results for these analytes were reported as not detected by one or more methods and/or the other results were less than five times the applicable reporting limits. Qualification of data was not required	
• Both total and dissolved metals analyses were performed, and the total metals results were greater than or equal to the dissolved metals results?	N/A
Comments: Only total metals were analyzed as part of this data set.	

FIELD DUPLICATE SUMMARY

Client Sample ID: RCR-SB2 (2') Field Duplicate Sample ID: RCR-BD1				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	ND (19 mg/kg)	1.8 mg/kg	DL
Barium, Total	6020	340 mg/kg	310 mg/kg	9.2%
Chromium, Total	6020	47 mg/kg	73 mg/kg	43.3%
Lead, Total	6020	57 mg/kg	84 mg/kg	38.3%
Selenium, Total	6020	ND (19) mg/kg	1.8 mg/kg	DL
Mercury, Total	**SW7471**	**0.062 mg/kg**	**0.12 mg/kg**	**63.7%**
TPH DRO	**SW8015**	**24,000 mg/kg**	**46,000 mg/kg**	**62.9%**
TPH GRO	SW8015	43 mg/kg	34 mg/kg	23.4%
TPH ORO	**SW8015**	**5,300 mg/kg**	**9,500 mg/kg**	**56.8%**
1,2,4-Trimethylbenzene	SW8260B	1.1 mg/kg	0.89 mg/kg	21.1%
1,3,5-Trimethylbenzene	SW8260B	0.063 mg/kg	0.053 mg/kg	17.2% +/-RL
1-Methylnaphthalene	SW8260B	5.9 mg/kg	5.6 mg/kg	5.2%
2-Methylnaphthalene	SW8260B	0.61 mg/kg	0.46 mg/kg	28.0% +/-RL
Benzene	SW8260B	0.41 mg/kg	0.32 mg/kg	24.7%
Ethylbenzene	SW8260B	1.0 mg/kg	0.84 mg/kg	17.4%
Isopropylbenzene	SW8260B	0.041 mg/kg	0.033 mg/kg	21.6% +/-RL
n-Butylbenzene	SW8260B	0.054 mg/kg	ND (0.52) mg/kg	DL
n-Propylbenzene	SW8260B	0.094 mg/kg	0.064 mg/kg	38.0% +/-RL
p-Isopropyltoluene	SW8260B	0.049 mg/kg	ND (0.17) mg/kg)	DL
Toluene	SW8260B	0.026 mg/kg	ND (0.17) mg/kg)	DL
Xylenes, Total	SW8260B	1.3 mg/kg	1.1 mg/kg	16.7%
1-Methylnaphthalene	**8270D**	**4.24 mg/kg**	**12.9 mg/kg**	**101.1%**
Acenaphthene	**8270D**	**1.73 mg/kg**	**5.29 mg/kg**	**101.4%**
Acenaphthylene	**8270D**	**0.342 mg/kg**	**1.08 mg/kg**	**103.8%**
Anthracene	**8270D**	**0.417 mg/kg**	**1.41 mg/kg**	**108.7%**
Benzo(a)anthracene	**8270D**	**0.689 mg/kg**	**1.56 mg/kg**	**77.5%**
Benzo(a)pyrene	**8270D**	**ND (0.263 mg/kg)**	**0.612 mg/kg**	**DL**
Benzo(b)fluoranthene	**8270D**	**0.357 mg/kg**	**0.811 mg/kg**	**77.7%**
Benzo(g,h,i)perylene	**8270D**	**ND (0.263 mg/kg)**	**0.444 mg/kg**	**DL**
Chrysene	**8270D**	**1.69 mg/kg**	**5.23 mg/kg**	**102.3%**
Dibenzo(a,h)anthracene	8270D	ND (0.263 mg/kg)	0.259 mg/kg	DL
Fluoranthene	**8270D**	**0.458 mg/kg**	**1.39 mg/kg**	**100.9%**
Fluorene	**8270D**	**2.07 mg/kg**	**6.78 mg/kg**	**106.4%**
Indeno(1,2,3-cd)pyrene	8270D	ND (0.263) mg/kg	0.189 mg/kg	DL
Naphthalene	**8270D**	**0.441 mg/kg**	**1.14 mg/kg**	**88.4%**
Phenanthrene	**8270D**	**3.41 mg/kg**	**8.75 mg/kg**	**87.8%**
Pyrene	**8270D**	**2.05 mg/kg**	**6.49 mg/kg**	**104.0%**

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DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB2 (2') and RCR-BD1.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(a)pyrene and benzo(g,h,i)perylene for the field duplicate pair RCR-SB2 (2') and RCR-BD1 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(a)pyrene and benzo(g,h,i)perylene were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SB5 (5') Field Duplicate Sample ID: RCR-BD2				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.5 mg/kg	1.0 mg/kg	40.0% +/-RL
Barium, Total	**6020**	**780 mg/kg**	**270 mg/kg**	**97.1%**
Chromium, Total	**6020**	**13 mg/kg**	**6.0 mg/kg**	**73.7%**
Lead, Total	**6020**	**11 mg/kg**	**ND (20) mg/kg**	**DL**
Selenium, Total	**6020**	**1.4 mg/kg**	**3.5 mg/kg**	**85.7%**
Mercury, Total	SW7471	0.016 mg/kg	0.012 mg/kg	28.6% +/-RL
TPH DRO	**SW8015**	**1,200 mg/kg**	**710 mg/kg**	**51.3%**
TPH GRO	SW8015	54 mg/kg	55 mg/kg	1.8%
TPH ORO	SW8015	3,600 mg/kg	2,200 mg/kg	48.3%
1,2,4-Trimethylbenzene	SW8260B	1.3 mg/kg	1.2 mg/kg	8.0%
1,3,5-Trimethylbenzene	SW8260B	0.33 mg/kg	0.32 mg/kg	3.1%
2-Methylnaphthalene	SW8260B	0.046 mg/kg	0.055 mg/kg	17.8% +/-RL
Benzene	**SW8260B**	**0.81 mg/kg**	**0.34 mg/kg**	**81.7%**
Ethylbenzene	SW8260B	0.88 mg/kg	0.64 mg/kg	31.6%
Isopropylbenzene	SW8260B	0.049 mg/kg	0.035 mg/kg	33.3% +/-RL
MTBE	**SW8260B**	**0.35 mg/kg**	**0.071 mg/kg**	**132.5%**
Naphthalene	SW8260B	0.080 mg/kg	0.076 mg/kg	5.1% +/-RL
n-Butylbenzene	SW8260B	0.034 mg/kg	0.037 mg/kg	8.5% +/-RL
n-Propylbenzene	SW8260B	0.25 mg/kg	0.19 mg/kg	27.3%
Toluene	SW8260B	0.066 mg/kg	0.066 mg/kg	0.0%
Xylenes, Total	SW8260B	2.4 mg/kg	2.2 mg/kg	8.7%
1-Methylnaphthalene	**8270D**	**0.0222 mg/kg**	**0.149 mg/kg**	**148.1%**
2-Methylnaphthalene	**8270D**	**0.0406 mg/kg**	**0.106 mg/kg**	**89.2%**
Acenaphthene	**8270D**	**ND (0.0118) mg/kg**	**0.0652 mg/kg**	**DL**
Anthracene	8270D	ND (0.0118) mg/kg	0.0348 mg/kg	DL
Benzo(a)anthracene	**8270D**	**0.0959 mg/kg**	**0.543 mg/kg**	**140.0%**
Benzo(a)pyrene	**8270D**	**0.0908 mg/kg**	**1.95 mg/kg**	**182.2%**
Benzo(b)fluoranthene	**8270D**	**0.109 mg/kg**	**0.704 mg/kg**	**146.4%**
Benzo(g,h,i)perylene	**8270D**	**0.0766 mg/kg**	**0.519 mg/kg**	**148.6%**
Benzo(k)fluoranthene	**8270D**	**0.016 mg/kg**	**0.148 mg/kg**	**161.0%**
Chrysene	**8270D**	**0.302 mg/kg**	**2.67 mg/kg**	**159.4%**
Dibenzo(a,h)anthracene	**8270D**	**0.0432 mg/kg**	**0.271 mg/kg**	**145.0%**
Fluoranthene	**8270D**	**0.0128 mg/kg**	**0.111 mg/kg**	**158.6%**
Fluorene	**8270D**	**ND (0.0118) mg/kg**	**0.0732 mg/kg**	**DL**
Indeno(1,2,3-cd)pyrene	**8270D**	**0.0302 mg/kg**	**0.225 mg/kg**	**152.7%**
Naphthalene	**8270D**	**0.0337 mg/kg**	**0.137 mg/kg**	**121.0%**
Phenanthrene	**8270D**	**ND (0.0118) mg/kg**	**0.148 mg/kg**	**DL**
Pyrene	**8270D**	**0.362 mg/kg**	**2.73 mg/kg**	**153.2%**

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DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB5 (5') and RCR-BD2.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples

An RPD value could not be calculated for total lead for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, total lead was qualified as J and UJ for the parent and duplicate samples, respectively. .

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB5 (5') and RCR-BD2 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SB6 (3') Field Duplicate Sample ID: RCR-BD3				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.1 mg/kg	1.1 mg/kg	0.0% +/-RL
Barium, Total	6020	360 mg/kg	390 mg/kg	8.0%
Chromium, Total	6020	14 mg/kg	16 mg/kg	13.3%
Lead, Total	6020	13 mg/kg	14 mg/kg	7.4%
Selenium, Total	6020	1.5 mg/kg	2.0 mg/kg	28.6% +/-RL
Mercury, Total	SW7471	0.0089 mg/kg	0.010 mg/kg	11.6% +/-RL
TPH DRO	SW8015	16,000 mg/kg	18,000 mg/kg	11.8%
TPH GRO	SW8015	1,000 mg/kg	670 mg/kg	39.5%
1,2,4-Trimethylbenzene	SW8260B	28 mg/kg	33 mg/kg	16.4%
1,3,5-Trimethylbenzene	SW8260B	4.1 mg/kg	3.5 mg/kg	15.8%
1-Methylnaphthalene	SW8260B	38 mg/kg	42 mg/kg	10.0%
2-Methylnaphthalene	SW8260B	65 mg/kg	71 mg/kg	8.8%
Benzene	SW8260B	4.4 mg/kg	4.7 mg/kg	6.6%
Ethylbenzene	SW8260B	34 mg/kg	32 mg/kg	6.1%
Isopropylbenzene	SW8260B	4.7 mg/kg	4 mg/kg	16.1%
MTBE	SW8260B	11 mg/kg	12 mg/kg	8.7%
Naphthalene	SW8260B	32 mg/kg	39 mg/kg	19.7%
n-Butylbenzene	SW8260B	8.9 mg/kg	5.9 mg/kg	40.5%
n-Propylbenzene	SW8260B	16 mg/kg	15 mg/kg	6.5%
p-Isopropyltoluene	SW8260B	2.7 mg/kg	2.2 mg/kg	20.4%
sec-Butylbenzene	SW8260B	4.8 mg/kg	3.6 mg/kg	28.6%
tert-Butylbenzene	SW8260B	0.14 mg/kg	ND (0.065) mg/kg	DL
Toluene	SW8260B	0.24 mg/kg	0.26 mg/kg	8.0%
Xylenes, Total	SW8260B	18 mg/kg	19 mg/kg	5.4%
1-Methylnaphthalene	SW8270C	70 mg/kg	ND (200) mg/kg	DL
2-Methylnaphthalene	SW8270C	110 mg/kg	140 mg/kg	24.0% +/-RL
Naphthalene	SW8270C	57 mg/kg	ND (200) mg/kg	DL
1-Methylnaphthalene	**8270D**	**43.1 mg/kg**	**84.2 mg/kg**	**64.6%**
2-Methylnaphthalene	**8270D**	**68.0 mg/kg**	**146 mg/kg**	**72.9%**
Acenaphthene	**8270D**	**0.945 mg/kg**	**4.28 mg/kg**	**127.7%**
Acenaphthylene	**8270D**	**0.538 mg/kg**	**2.34 mg/kg**	**125.2%**
Anthracene	**8270D**	**0.340 mg/kg**	**19.9 mg/kg**	**193.3%**
Benzo(a)anthracene	**8270D**	**0.960 mg/kg**	**2.88 mg/kg**	**100.0%**
Benzo(a)pyrene	**8270D**	**0.549 mg/kg**	**2.64 mg/kg**	**131.1%**
Benzo(b)fluoranthene	**8270D**	**0.314 mg/kg**	**1.21 mg/kg**	**117.6%**
Benzo(g,h,i)perylene	**8270D**	**ND (0.247) mg/kg**	**1.02 mg/kg**	**DL**
Benzo(k)fluoranthene	**8270D**	**ND (0.247) mg/kg**	**1.12 mg/kg**	**DL**
Chrysene	8270D	2.12 mg/kg	3.12 mg/kg	38.2%
Dibenzo(a,h)anthracene	**8270D**	**ND (0.247) mg/kg**	**0.518 mg/kg**	**DL**
Fluoranthene	**8270D**	**0.464 mg/kg**	**1.29 mg/kg**	**94.2%**

Client Sample ID: RCR-SB6 (3') Field Duplicate Sample ID: RCR-BD3				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Fluorene	**8270D**	**3.54 mg/kg**	**0.411 mg/kg**	**158.4%**
Indeno(1,2,3-cd)pyrene	**8270D**	**ND (0.247 mg/kg)**	**0.340 mg/kg**	**DL**
Naphthalene	**8270D**	**26.6 mg/kg**	**50.6 mg/kg**	**62.2%**
Phenanthrene	**8270D**	**8.20 mg/kg**	**16.7 mg/kg**	**68.3%**
Pyrene	**8270D**	**2.47 mg/kg**	**4.98 mg/kg**	**67.4%**

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DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SB6 (3') and RCR-BD3.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene for the field duplicate pair RCR-SB6 (3') and RCR-BD3 since the analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SB4 (5') Field Duplicate Sample ID: RCR-BD4				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	0.85 mg/kg	0.93 mg/kg	9.0% +/-RL
Barium, Total	6020	350 mg/kg	320 mg/kg	9.0%
Chromium, Total	6020	19 mg/kg	21 mg/kg	10.0%
Lead, Total	6020	12 mg/kg	13 mg/kg	8.0%
Selenium, Total	6020	1.4 mg/kg	2.2 mg/kg	44.4% +/-RL
Mercury, Total	SW7471	0.0063 mg/kg	0.0086 mg/kg	30.9% +/-RL
TPH GRO	SW8015	9.0 mg/kg	6.6 mg/kg	30.8%
Benzene	SW8260B	0.63 mg/kg	0.57 mg/kg	10.0%
Ethylbenzene	SW8260B	0.20 mg/kg	0.15 mg/kg	28.6%
Isopropylbenzene	SW8260B	0.016 mg/kg	0.012 mg/kg	28.6% +/-RL
MTBE	SW8260B	1.5 mg/kg	1.4 mg/kg	6.9%
Naphthalene	SW8260B	0.017 mg/kg	0.015 mg/kg	12.5% +/-RL
n-Propylbenzene	SW8260B	0.046 mg/kg	0.034 mg/kg	30.0% +/-RL
Di-n-butylphthalate	SW8270C	ND (0.39) mg/kg	0.32 mg/kg	DL
1-Methylnaphthalene	**8270D**	**ND (0.0126) mg/kg**	**0.332 mg/kg**	**DL**
2-Methylnaphthalene	**8270D**	**ND (0.0126) mg/kg**	**0.534 mg/kg**	**DL**
Acenaphthene	8270D	ND (0.0126) mg/kg	0.0195 mg/kg	DL
Fluorene	**8270D**	**ND (0.0126) mg/kg**	**0.0353 mg/kg**	**DL**
Naphthalene	**8270D**	**ND (0.0126) mg/kg**	**0.200 mg/kg**	**DL**
Phenanthrene	**8270D**	**ND (0.0126) mg/kg**	**0.106 mg/kg**	**DL**
Pyrene	**8270D**	**ND (0.0126) mg/kg**	**0.0266 mg/kg**	**DL**

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DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SB4 (5') and RCR-BD4 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SS3 (0.5') Field Duplicate Sample ID: RCR-BD5				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.1 mg/kg	1.1 mg/kg	0.0% +/-RL
Barium, Total	6020	360 mg/kg	330 mg/kg	8.7%
Chromium, Total	6020	15 mg/kg	23 mg/kg	42.1%
Lead, Total	6020	66 mg/kg	65 mg/kg	1.5%
Selenium, Total	6020	ND (2.1) mg/kg	1.8 mg/kg	DL
Mercury, Total	**SW7471**	**0.20 mg/kg**	**0.030 mg/kg**	**147.8%**
TPH DRO	SW8015	7,600 mg/kg	7,600 mg/kg	0.0%
TPH GRO	SW8015	700 mg/kg	420 mg/kg	50.0%
1,2,4-Trimethylbenzene	SW8260B	49 mg/kg	41 mg/kg	17.8%
1,3,5-Trimethylbenzene	SW8260B	18 mg/kg	14 mg/kg	25.0%
1-Methylnaphthalene	SW8260B	7.4 mg/kg	5.9 mg/kg	22.6%
2-Methylnaphthalene	SW8260B	13 mg/kg	11 mg/kg	16.7%
Benzene	SW8260B	4.0 mg/kg	4.0 mg/kg	0.0%
Ethylbenzene	SW8260B	16 mg/kg	13 mg/kg	20.7%
Isopropylbenzene	SW8260B	1.5 mg/kg	1.4 mg/kg	6.9%
MTBE	SW8260B	ND (0.16) mg/kg	0.052 mg/kg	DL
Naphthalene	SW8260B	10 mg/kg	10 mg/kg	0.0%
n-Butylbenzene	SW8260B	1.9 mg/kg	1.5 mg/kg	23.5%
n-Propylbenzene	SW8260B	5.8 mg/kg	4.9 mg/kg	16.8%
p-Isopropyltoluene	SW8260B	0.49 mg/kg	0.37 mg/kg	27.9%
sec-Butylbenzene	SW8260B	0.64 mg/kg	0.55 mg/kg	15.1%
Toluene	SW8260B	18 mg/kg	17 mg/kg	5.7%
Xylenes, Total	SW8260B	70 mg/kg	59 mg/kg	17.1%
1-Methylnaphthalene	SW8270C	21 mg/kg	ND (200) mg/kg	DL
2-Methylnaphthalene	SW8270C	35 mg/kg	ND (200) mg/kg	DL
Naphthalene	SW8270C	24 mg/kg	ND (200) mg/kg	DL
1-Methylnaphthalene	**8270D**	**11.2 mg/kg**	**0.143 mg/kg**	**195.0%**
2-Methylnaphthalene	**8270D**	**16.5 mg/kg**	**0.221 mg/kg**	**194.7%**
Acenaphthene	8270D	0.548 mg/kg	ND (0.026) mg/kg	DL
Benzo(g,h,i)perylene	**8270D**	**ND (0.498) mg/kg**	**0.0787 mg/kg**	**DL**
Chrysene	**8270D**	**0.731 mg/kg**	**0.102 mg/kg**	**151.0%**
Fluorene	**8270D**	**2.00 mg/kg**	**ND (0.026) mg/kg**	**DL**
Naphthalene	**8270D**	**5.50 mg/kg**	**0.0767 mg/kg**	**194.5%**
Phenanthrene	**8270D**	**3.71 mg/kg**	**0.0605 mg/kg**	**193.6%**
Pyrene	**8270D**	**1.61 mg/kg**	**0.053 mg/kg**	**187.3%**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS3 (0.5') and RCR-BD5.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for benzo(g,h,i)perylene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the duplicate sample and was undetected in the parent sample. As the detection in the duplicate sample was greater than two times the reporting limit, benzo(g,h,i)perylene was qualified as J and UJ for the duplicate and parent samples, respectively.

An RPD value could not be calculated for fluorene for the field duplicate pair RCR-SS3 (0.5') and RCR-BD5 since the analyte was detected in the parent sample and was undetected in the duplicate sample. As the detection in the parent sample was greater than two times the reporting limit, fluorene was qualified as J and UJ for the parent and duplicate samples, respectively.

Client Sample ID: RCR-SS9 (1') Field Duplicate Sample ID: RCR-BD6				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	1.9 mg/kg	1.0 mg/kg	62.1% +/-RL
Barium, Total	6020	390 mg/kg	320 mg/kg	19.7%
Chromium, Total	6020	36 mg/kg	22 mg/kg	48.3%
Lead, Total	6020	20 mg/kg	16 mg/kg	22.2%
Selenium, Total	6020	1.6 mg/kg	2.1 mg/kg	27.0%
Mercury, Total	**SW7471**	**0.21 mg/kg**	**0.043 mg/kg**	**132.0%**
TPH DRO	SW8015	9.4 mg/kg	16 mg/kg	52.0% +/-RL
TPH GRO	SW8015	ND (3.9) mg/kg)	1.2 mg/kg	DL
TPH ORO	SW8015	65 mg/kg	ND (47) mg/kg	DL
1,1,2,2-Tetrachloroethane	SW8260B	ND (0.039) mg/kg)	0.017 mg/kg	DL
1,2,4-Trimethylbenzene	SW8260B	0.023 mg/kg	0.019 mg/kg	19.0% +/-RL
2-Butanone	SW8260B	ND (0.39) mg/kg)	0.13 mg/kg	DL
2-Hexanone	SW8260B	ND (0.39) mg/kg)	0.031 mg/kg	DL
Bromodichloromethane	SW8260B	ND (0.039) mg/kg)	0.0053 mg/kg	DL
Toluene	SW8260B	0.0085 mg/kg	0.0043 mg/kg	65.6% +/-RL
1-Methylnaphthalene	**8270D**	**ND (0.0231) mg/kg)**	**13.3 mg/kg**	**DL**
2-Methylnaphthalene	**8270D**	**ND (0.0231) mg/kg)**	**21 mg/kg**	**DL**
Acenaphthene	**8270D**	**ND (0.0231) mg/kg)**	**1.51 mg/kg**	**DL**
Acenaphthylene	**8270D**	**ND (0.0231) mg/kg)**	**0.779 mg/kg**	**DL**
Anthracene	**8270D**	**ND (0.0231) mg/kg)**	**4.08 mg/kg**	**DL**
Benzo(a)anthracene	**8270D**	**ND (0.0231) mg/kg)**	**0.163 mg/kg**	**DL**
Benzo(a)pyrene	**8270D**	**ND (0.0231) mg/kg)**	**0.298 mg/kg**	**DL**
Benzo(b)fluoranthene	**8270D**	**ND (0.0231) mg/kg)**	**0.164 mg/kg**	**DL**
Benzo(g,h,i)perylene	**8270D**	**0.0523 mg/kg**	**0.126 mg/kg**	**82.7%**
Benzo(k)fluoranthene	**8270D**	**ND (0.0231) mg/kg)**	**0.152 mg/kg**	**DL**
Chrysene	**8270D**	**ND (0.0231) mg/kg)**	**1.07 mg/kg**	**DL**
Dibenzo(a,h)anthracene	8270D	ND (0.0231) mg/kg)	0.0457 mg/kg	DL
Fluoranthene	**8270D**	**ND (0.0231) mg/kg)**	**0.654 mg/kg**	**DL**
Fluorene	**8270D**	**ND (0.0231) mg/kg)**	**2.96 mg/kg**	**DL**
Indeno(1,2,3-cd)pyrene	8270D	ND (0.0231) mg/kg)	0.0326 mg/kg	DL
Naphthalene	**8270D**	**ND (0.0231) mg/kg)**	**14.1 mg/kg**	**DL**
Phenanthrene	**8270D**	**ND (0.0231) mg/kg)**	**3.57 mg/kg**	**DL**
Pyrene	**8270D**	**ND (0.0231) mg/kg)**	**1.97 mg/kg**	**DL**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

DL – Indicates that the analyte was detected in one of the duplicate samples and was undetected in the other sample, and therefore an RPD could not be calculated. Data were not qualified since the detection was within two times the reporting limit. Non-detected results are indicated above with the applicable reporting limit as ND (RL).

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD values for multiple analytes exceeded the data validation limit of 50%, which was evidence of poor precision. These analyte results were qualified as J for samples RCR-SS9 (1') and RCR-BD6.

The results for associated samples would typically be qualified based on RPD values greater than 100%, but since multiple field duplicates were collected and analyzed, determination of sample associations would be arbitrary. Therefore, the qualification of the indicated analyte results was limited to the identified samples.

An RPD value could not be calculated for multiple analytes for the field duplicate pair RCR-SS9 (1') and RCR-BD6 since these analytes were detected in the duplicate sample and were undetected in the parent sample. As the detections in the duplicate sample were greater than two times the reporting limit, these analytes were qualified as J and UJ for the duplicate and parent samples, respectively.

Client Sample ID: RCR-SS10 (1') Field Duplicate Sample ID: RCR-BD7				
Analyte	**Method**	**Laboratory Result**	**Duplicate Result**	**Relative Percent Difference (RPD)**
Arsenic, Total	6020	0.89 mg/kg	0.96 mg/kg	7.6% +/-RL
Barium, Total	6020	280 mg/kg	270 mg/kg	3.6%
Chromium, Total	6020	19 mg/kg	17 mg/kg	11.1%
Lead, Total	6020	10 mg/kg	10 mg/kg	0.0%
Selenium, Total	6020	1.9 mg/kg	1.8 mg/kg	5.4%
Mercury, Total	**SW7471**	**0.011 mg/kg**	**0.079 mg/kg**	**151.1%**

Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 - New England Environmental Data Review Supplement for Region 1 Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement2, September 2020.

+/-RL – Indicates that the detections in both of the samples were within two times the reporting limit. Qualification of data was not required.

The RPD value for total mercury greatly exceeded the data validation limit of 50% at 151.1%. The total mercury results were qualified as J for the parent and duplicate samples, RCR-SS10 (1') and RCR-BD7, as well as the remaining associated samples based on evidence of extremely poor precision (RPD > 100%).

DATA QUALIFICATION SUMMARY

Abbreviation	Reason
EBD	Equipment blank detection
ERPD-FD	High field duplicate RPD.
ERPD-MS	The MS/MSD RPD exceeded the upper acceptable limit indicating poor precision.
HR-LCS	The LCS and/or LCSD percent recovery was greater than the upper acceptable limit indicating a possible high bias.
HR-MS	The MS and/or MSD percent recovery was greater than the upper acceptable limit indicating possible matrix interference.
HR-SUR	The surrogate percent recovery was greater than the upper acceptable limit indicating a possible high bias.
LR-LCS	The LCS and/or LCSD percent recovery was less than the lower acceptable limit indicating a possible low bias.
LR-MS	The MS and/or MSD percent recovery was less than the lower acceptable limit indicating possible matrix interference.
MDLRL	Flagged by the laboratory: The result was greater than the MDL but less than the RL.

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
1,1,2,2-Tetrachloroethane	SW8260B	RCR-SS8 (1')	2108721-048a	0.019	0.049	mg/kg	J	MDLRL
1,1,2,2-Tetrachloroethane	SW8260B	RCR-BD6	2108721-056a	0.017	0.031	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.072	0.049	mg/kg	J+	HR-SUR
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (0')	2108721-001a	0.014	0.044	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (2.5')	2108721-002a	0.023	0.039	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB1 (8')	2108721-006a	0.043	0.045	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB2 (5')	2108721-010a	0.0058	0.029	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.011	0.031	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.026	0.048	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.031	0.040	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB4 (7.5')	2108721-022a	0.020	0.037	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB4 (8')	2108721-023a	0.040	0.040	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SB5 (2.5')	2108721-025a	0.085	0.15	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
1,2,4-Trimethylbenzene	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.013	0.027	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS1 (1')	2108721-034a	0.0097	0.035	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS6 (0.5')	2108721-043a	0.011	0.034	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS7 (0.5')	2108721-045a	0.013	0.037	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS8 (0.5')	2108721-047a	0.013	0.037	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS8 (1')	2108721-048a	0.0071	0.049	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS9 (0.5')	2108721-049a	0.027	0.035	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-SS9 (1')	2108721-050a	0.023	0.039	mg/kg	J	MDLRL
1,2,4-Trimethylbenzene	SW8260B	RCR-BD6	2108721-056a	0.019	0.031	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.063	0.18	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SB5 (4')	2108721-026a	0.056	0.23	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.023	0.049	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-SS9 (0.5')	2108721-049a	0.0085	0.035	mg/kg	J	MDLRL
1,3,5-Trimethylbenzene	SW8260B	RCR-BD1	2108721-051a	0.053	0.17	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB1 (4')	2108721-003a	1.9	0.20	mg/kg	J+	HR-SUR
1-Methylnaphthalene	8270D	RCR-SB2 (2')	2108721-008A	4.24	0.263	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SB5 (5')	2108721-027A	0.0222	0.0118	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SB6 (3')	2108721-032A	43.1	0.247	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SS3 (0.5')	2108721-037A	11.2	0.498	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD1	2108721-051A	12.9	0.131	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD2	2108721-052A	0.149	0.0212	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD3	2108721-053A	84.2	0.248	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD4	2108721-054A	0.332	0.0127	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD5	2108721-055A	0.143	0.026	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-BD6	2108721-056A	13.3	0.475	mg/kg	J	ERPD-FD
1-Methylnaphthalene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
1-Methylnaphthalene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
1-Methylnaphthalene	SW8260B	RCR-SB1 (8')	2108721-006a	0.082	0.18	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (0')	2108721-013a	0.080	0.13	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.066	0.12	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (5')	2108721-015a	0.15	0.19	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.091	0.16	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SB4 (0')	2108721-018A	32	49	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.16	0.16	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8260B	RCR-SB6 (0')	2108721-030a	0.13	0.19	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SB6 (3')	2108721-032A	70	100	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SS3 (0.5')	2108721-037A	21	39	mg/kg	J	MDLRL
1-Methylnaphthalene	SW8270C	RCR-SS3 (1')	2108721-038A	23	39	mg/kg	J	MDLRL
2,4-Dinitrotoluene	SW8270C	RCR-SB2 (2')	2108721-008A	ND	490	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB4 (5')	2108721-021A	ND	0.48	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB4 (7.5')	2108721-022a	ND	0.50	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB4 (8')	2108721-023A	ND	0.47	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (0')	2108721-024A	ND	4.9	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (2.5')	2108721-025A	ND	4.7	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (4')	2108721-026A	ND	4.9	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (5')	2108721-027A	ND	25	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (7.5')	2108721-028A	ND	4.9	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB5 (8')	2108721-029A	ND	0.5	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB6 (2.5')	2108721-031A	ND	99	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SB6 (3')	2108721-032A	ND	250	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS1 (0.5')	2108721-033A	ND	4.6	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS1 (1')	2108721-034A	ND	4.8	mg/kg	UJ	LR-MS

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
2,4-Dinitrotoluene	SW8270C	RCR-SS2 (0.5')	2108721-035A	ND	5.0	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS2 (1')	2108721-036A	ND	5.0	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS3 (0.5')	2108721-037A	ND	96	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS3 (1')	2108721-038A	ND	96	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS4 (0.5')	2108721-039a	ND	25	mg/kg	UJ	LR-MS
2,4-Dinitrotoluene	SW8270C	RCR-SS4 (1')	2108721-040a	ND	9.7	mg/kg	UJ	LR-MS
2-Butanone	SW8260B	RCR-SB3 (5')	2108721-015a	0.45	0.48	mg/kg	U	EBD, MDLRL
2-Butanone	SW8260B	RCR-BD6	2108721-056a	0.13	0.31	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SB1 (4')	2108721-003a	0.36	0.49	mg/kg	U	EBD, HR-SUR, MDLRL
2-Hexanone	SW8260B	RCR-SB1 (5')	2108721-004a	0.19	0.47	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SB3 (5')	2108721-015a	0.045	0.48	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SB6 (0')	2108721-030a	0.038	0.49	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-SS8 (1')	2108721-048a	0.036	0.49	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-BD6	2108721-056a	0.031	0.31	mg/kg	U	EBD, MDLRL
2-Hexanone	SW8260B	RCR-EB1	2108721-057a	2.4	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB2	2108721-058a	2.6	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB3	2108721-059a	2.8	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB4	2108721-060a	2.2	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB5	2108721-061a	2.2	10	µg/L	J	MDLRL
2-Hexanone	SW8260B	RCR-EB6	2108721-062a	2.3	10	µg/L	J	MDLRL
2-Methylnaphthalene	8270D	RCR-SB5 (5')	2108721-027A	0.0406	0.0118	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SB6 (3')	2108721-032A	68.0	0.247	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SS3 (0.5')	2108721-037A	16.5	0.498	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD2	2108721-052A	0.106	0.0212	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD3	2108721-053A	146	0.248	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD4	2108721-054A	0.534	0.0127	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
2-Methylnaphthalene	8270D	RCR-BD5	2108721-055A	0.221	0.026	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-BD6	2108721-056A	21.0	0.475	mg/kg	J	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
2-Methylnaphthalene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
2-Methylnaphthalene	SW8260B	RCR-SB1 (5')	2108721-004a	0.054	0.19	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB2 (0')	2108721-007a	0.054	0.19	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB2 (2')	2108721-008a	0.61	0.71	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (0')	2108721-013a	0.074	0.13	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.074	0.12	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (5')	2108721-015a	0.13	0.19	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.037	0.16	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SB4 (0')	2108721-018A	41	49	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SB4 (2')	2108721-019A	26	48	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SB5 (5')	2108721-027a	0.046	0.13	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.032	0.11	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SS2 (1')	2108721-036A	1.1	2.0	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-SS3 (0.5')	2108721-037A	35	39	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-SS7 (1')	2108721-046a	0.044	0.12	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-BD1	2108721-051a	0.46	0.69	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8260B	RCR-BD2	2108721-052a	0.055	0.12	mg/kg	J	MDLRL
2-Methylnaphthalene	SW8270C	RCR-BD3	2108721-053a	140	200	mg/kg	J	MDLRL
4-Methyl-2-Pentanone	SW8260B	RCR-SB1 (5')	2108721-004a	0.24	0.47	mg/kg	J	MDLRL
4-Methyl-2-Pentanone	SW8260B	RCR-SB3 (5')	2108721-015a	0.066	0.48	mg/kg	J	MDLRL
Acenaphthene	8270D	RCR-SB2 (2')	2108721-008A	1.73	0.263	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-SB6 (3')	2108721-032A	0.945	0.247	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-BD1	2108721-051A	5.29	0.131	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Acenaphthene	8270D	RCR-BD2	2108721-052A	0.0652	0.0212	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-BD3	2108721-053A	4.28	0.0248	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-BD6	2108721-056A	1.51	0.0238	mg/kg	J	ERPD-FD
Acenaphthene	8270D	RCR-SB5 (5')	2108721-027A	ND	0.0118	mg/kg	UJ	ERPD-FD
Acenaphthylene	8270D	RCR-SB2 (2')	2108721-008A	0.342	0.263	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-SB6 (3')	2108721-032A	0.538	0.247	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-BD1	2108721-051A	1.08	0.131	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-BD3	2108721-053A	2.34	0.0248	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-BD6	2108721-056A	0.779	0.0238	mg/kg	J	ERPD-FD
Acenaphthylene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Acetone	SW8260B	RCR-SB3 (5')	2108721-015a	0.17	0.73	mg/kg	U	EBD, MDLRL
Anthracene	8270D	RCR-SB2 (2')	2108721-008A	0.417	0.263	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-SB6 (3')	2108721-032A	0.340	0.247	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-BD1	2108721-051A	1.41	0.131	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-BD3	2108721-053A	19.9	0.0248	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-BD6	2108721-056A	4.08	0.0238	mg/kg	J	ERPD-FD
Anthracene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Arsenic, Total	6020	RCR-SB1 (0')	2108721-001A	1.4	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (0')	2108721-018A	2.0	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (2')	2108721-019A	1.5	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (5')	2108721-021A	0.85	1.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB4 (7.5')	2108721-022A	0.97	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB5 (2.5')	2108721-025A	1.6	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB5 (5')	2108721-027A	1.5	2.1	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB6 (0')	2108721-030A	1.5	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SB6 (2.5')	2108721-031A	1.1	1.9	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Arsenic, Total	6020	RCR-SB6 (3')	2108721-032A	1.1	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS3 (0.5')	2108721-037A	1.1	2.1	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS3 (1')	2108721-038A	1.2	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS5 (0.5')	2108721-041A	1.4	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS5 (1')	2108721-042A	1.3	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS6 (1')	2108721-044A	1.2	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS7 (0.5')	2108721-045A	1.4	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS7 (1')	2108721-046A	1.3	2.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-SS8 (0.5')	2108721-047A	1.2	1.9	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-BD2	2108721-052A	1.0	1.0	mg/kg	J	MDLRL
Arsenic, Total	6020	RCR-BD4	2108721-054A	0.93	1.0	mg/kg	J	MDLRL
Barium, Total	6020	RCR-SB5 (5')	2108721-027A	780	21	mg/kg	J	ERPD-FD
Barium, Total	6020	RCR-BD2	2108721-052A	270	20	mg/kg	J	ERPD-FD
Barium, Total	6020	RCR-SS10 (0.5')	2108A86-001A	370	9.7	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-SS10 (1')	2108A86-002A	280	8.2	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-SS11 (0.5')	2108A86-003A	380	10	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-SS11 (1')	2108A86-004A	340	9.8	mg/kg	J+	HR-LCS
Barium, Total	6020	RCR-BD7	2108A86-005A	270	8.1	mg/kg	J+	HR-LCS
Benzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.023	0.025	mg/kg	J+	HR-SUR, MDLRL
Benzene	SW8260B	RCR-SB5 (5')	2108721-027a	0.81	0.016	mg/kg	J	ERPD-FD
Benzene	SW8260B	RCR-BD2	2108721-052a	0.34	0.016	mg/kg	J	ERPD-FD
Benzene	SW8260B	RCR-SB1 (2.5')	2108721-002a	0.011	0.019	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.019	0.024	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.0098	0.024	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SS2 (0.5')	2108721-035a	0.013	0.017	mg/kg	J	MDLRL
Benzene	SW8260B	RCR-SS2 (1')	2108721-036a	0.011	0.016	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Benzo(a)anthracene	8270D	RCR-SB2 (2')	2108721-008A	0.689	0.263	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-SB5 (5')	2108721-027A	0.0959	0.0118	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-SB6 (3')	2108721-032A	0.96	0.247	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD1	2108721-051A	1.56	0.131	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD2	2108721-052A	0.543	0.0212	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD3	2108721-053A	2.88	0.0248	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-BD6	2108721-056A	0.163	0.0238	mg/kg	J	ERPD-FD
Benzo(a)anthracene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SB5 (5')	2108721-027A	0.0908	0.0118	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SB6 (3')	2108721-032A	0.549	0.247	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD1	2108721-051A	0.612	0.131	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD2	2108721-052A	1.95	0.0212	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD3	2108721-053A	2.64	0.0248	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-BD6	2108721-056A	0.298	0.0238	mg/kg	J	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SB2 (2')	2108721-008A	ND	0.263	mg/kg	UJ	ERPD-FD
Benzo(a)pyrene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SB2 (2')	2108721-008A	0.357	0.263	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SB5 (5')	2108721-027A	0.109	0.0118	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SB6 (3')	2108721-032A	0.314	0.247	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD1	2108721-051A	0.811	0.131	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD2	2108721-052A	0.704	0.0212	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD3	2108721-053A	1.21	0.0248	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-BD6	2108721-056A	0.164	0.0238	mg/kg	J	ERPD-FD
Benzo(b)fluoranthene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SB5 (5')	2108721-027A	0.0766	0.0118	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SS9 (1')	2108721-050A	0.0523	0.0231	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Benzo(g,h,i)perylene	8270D	RCR-BD1	2108721-051A	0.444	0.131	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD2	2108721-052A	0.519	0.0212	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD3	2108721-053A	1.02	0.0248	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD5	2108721-055A	0.0787	0.026	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-BD6	2108721-056A	0.126	0.0238	mg/kg	J	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SB2 (2')	2108721-008A	ND	0.263	mg/kg	UJ	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Benzo(g,h,i)perylene	8270D	RCR-SS3 (0.5')	2108721-037A	ND	0.498	mg/kg	UJ	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-SB5 (5')	2108721-027A	0.0160	0.0118	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-BD2	2108721-052A	0.148	0.0212	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-BD3	2108721-053A	1.12	0.0248	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-BD6	2108721-056A	0.152	0.0238	mg/kg	J	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Benzo(k)fluoranthene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Bis(2-ethylhexyl)phthalate	SW8270C	RCR-SB3 (5')	2108721-015a	3.3	5.0	mg/kg	J	MDLRL
Bromodichloromethane	SW8260B	RCR-SB1 (4')	2108721-003a	0.012	0.049	mg/kg	J+	HR-SUR, MDLRL
Bromodichloromethane	SW8260B	RCR-SB1 (5')	2108721-004a	0.026	0.047	mg/kg	J	MDLRL
Bromodichloromethane	SW8260B	RCR-SB3 (5')	2108721-015a	0.0094	0.048	mg/kg	J	MDLRL
Bromodichloromethane	SW8260B	RCR-BD6	2108721-056a	0.0053	0.031	mg/kg	J	MDLRL
Cadmium, Total	6020	RCR-SS3 (1')	2108721-038A	1.2	1.9	mg/kg	J	MDLRL
Chloroform	SW8260B	RCR-SB1 (4')	2108721-003a	0.011	0.049	mg/kg	J+	HR-SUR, MDLRL
Chloroform	SW8260B	RCR-SB1 (5')	2108721-004a	0.028	0.047	mg/kg	J	MDLRL
Chromium, Total	6020	RCR-SB1 (0')	2108721-001A	36	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (2.5')	2108721-002A	60	2.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (4')	2108721-003A	13	0.48	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (5')	2108721-004A	17	0.48	mg/kg	J+	HR-LCS

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Chromium, Total	6020	RCR-SB1 (7.5')	2108721-005A	20	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB1 (8')	2108721-006A	21	0.52	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (0')	2108721-007A	26	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (2')	2108721-008A	47	0.97	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (2.5')	2108721-009A	28	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (5')	2108721-010A	15	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (7.5')	2108721-011A	20	0.51	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB2 (8')	2108721-012A	21	0.52	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (0')	2108721-013A	19	0.50	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (2.5')	2108721-014A	16	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (5')	2108721-015A	13	0.48	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (7.5')	2108721-016A	11	0.42	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB3 (8')	2108721-017A	12	0.39	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB4 (0')	2108721-018A	87	2.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB4 (2')	2108721-019A	20	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB4 (2.5')	2108721-020A	19	0.49	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SB5 (5')	2108721-027A	13	2.1	mg/kg	J	ERPD-FD
Chromium, Total	6020	RCR-BD2	2108721-052A	6.0	1.0	mg/kg	J	ERPD-FD
Chromium, Total	6020	RCR-SS10 (0.5')	2108A86-001A	27	0.97	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SS10 (1')	2108A86-002A	19	0.51	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SS11 (0.5')	2108A86-003A	36	1.0	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-SS11 (1')	2108A86-004A	30	0.98	mg/kg	J+	HR-LCS
Chromium, Total	6020	RCR-BD7	2108A86-005A	17	0.50	mg/kg	J+	HR-LCS
Chrysene	8270D	RCR-SB2 (2')	2108721-008A	1.69	0.263	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-SB5 (5')	2108721-027A	0.302	0.0118	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-SS3 (0.5')	2108721-037A	0.731	0.498	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Chrysene	8270D	RCR-BD1	2108721-051A	5.23	0.131	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-BD2	2108721-052A	2.67	0.0212	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-BD5	2108721-055A	0.102	0.0260	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-BD6	2108721-056A	1.07	0.0238	mg/kg	J	ERPD-FD
Chrysene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-SB5 (5')	2108721-027A	0.0432	0.0118	mg/kg	J	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-BD2	2108721-052A	0.271	0.0212	mg/kg	J	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-BD3	2108721-053A	0.518	0.0248	mg/kg	J	ERPD-FD
Dibenzo(a,h)anthracene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Di-n-butylphthalate	SW8270C	RCR-SB4 (8')	2108721-023A	0.27	0.37	mg/kg	J	MDLRL
Di-n-butylphthalate	SW8270C	RCR-BD4	2108721-054a	0.32	0.38	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.021	0.049	mg/kg	J+	HR-SUR, MDLRL
Ethylbenzene	SW8260B	RCR-SB1 (5')	2108721-004a	0.032	0.047	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB2 (7.5')	2108721-011a	0.012	0.041	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB2 (8')	2108721-012a	0.036	0.042	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.029	0.048	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SB3 (8')	2108721-017a	0.026	0.040	mg/kg	J	MDLRL
Ethylbenzene	SW8260B	RCR-SS7 (1')	2108721-046a	0.026	0.029	mg/kg	J	MDLRL
Fluoranthene	8270D	RCR-SB2 (2')	2108721-008A	0.458	0.263	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-SB5 (5')	2108721-027A	0.0128	0.0118	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-SB6 (3')	2108721-032A	0.464	0.247	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD1	2108721-051A	1.39	0.131	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD2	2108721-052A	0.111	0.0212	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD3	2108721-053A	1.29	0.0248	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-BD6	2108721-056A	0.654	0.0238	mg/kg	J	ERPD-FD
Fluoranthene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Fluorene	8270D	RCR-SB2 (2')	2108721-008A	2.07	0.263	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-SB6 (3')	2108721-032A	3.54	0.247	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-SS3 (0.5')	2108721-037A	2.00	0.498	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD1	2108721-051A	6.78	0.131	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD2	2108721-052A	0.0732	0.0212	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD3	2108721-053A	0.411	0.0248	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD4	2108721-054A	0.0353	0.0127	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-BD6	2108721-056A	2.96	0.0238	mg/kg	J	ERPD-FD
Fluorene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
Fluorene	8270D	RCR-SB5 (5')	2108721-027A	ND	0.0118	mg/kg	UJ	ERPD-FD
Fluorene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Fluorene	8270D	RCR-BD5	2108721-055A	ND	0.0260	mg/kg	UJ	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-SB5 (5')	2108721-027A	0.0302	0.0118	mg/kg	J	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-BD2	2108721-052A	0.225	0.0212	mg/kg	J	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-BD3	2108721-053A	0.340	0.0248	mg/kg	J	ERPD-FD
Indeno(1,2,3-cd)pyrene	8270D	RCR-SB6 (3')	2108721-032A	ND	0.247	mg/kg	UJ	ERPD-FD
Isopropylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.041	0.18	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.037	0.040	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB4 (5')	2108721-021a	0.016	0.026	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB4 (8')	2108721-023a	0.012	0.040	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.017	0.049	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SS5 (0.5')	2108721-041a	0.043	0.048	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-SS5 (1')	2108721-042a	0.014	0.051	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-BD1	2108721-051a	0.033	0.17	mg/kg	J	MDLRL
Isopropylbenzene	SW8260B	RCR-BD4	2108721-054a	0.012	0.026	mg/kg	J	MDLRL
Lead, Total	6020	RCR-SB5 (5')	2108721-027A	11	2.1	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Lead, Total	6020	RCR-BD2	2108721-052A	ND	20	mg/kg	UJ	ERPD-FD
Mercury, Total	SW7471	RCR-SB5 (0')	2108721-024A	0.08	0.033	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SB6 (0')	2108721-030A	0.13	0.035	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS3 (1')	2108721-038A	0.031	0.031	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS7 (1')	2108721-046A	0.14	0.032	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS8 (0.5')	2108721-047A	0.11	0.031	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SS9 (0.5')	2108721-049A	0.21	0.036	mg/kg	J+	HR-MS
Mercury, Total	SW7471	RCR-SB4 (5')	2108721-021A	0.0063	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB4 (7.5')	2108721-022A	0.0068	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB4 (8')	2108721-023A	0.0065	0.036	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (2.5')	2108721-025A	0.14	0.15	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (4')	2108721-026a	0.0087	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (5')	2108721-027A	0.016	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (7.5')	2108721-028A	0.0069	0.035	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB5 (8')	2108721-029A	0.0072	0.036	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB6 (2.5')	2108721-031A	0.0081	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB6 (3')	2108721-032A	0.0089	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS1 (0.5')	2108721-033A	0.0074	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS1 (1')	2108721-034A	0.0083	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS2 (0.5')	2108721-035A	0.0084	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS2 (1')	2108721-036A	0.0080	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS4 (0.5')	2108721-039A	0.013	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS4 (1')	2108721-040A	0.0069	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS5 (0.5')	2108721-041A	0.013	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS5 (1')	2108721-042A	0.017	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS6 (0.5')	2108721-043A	0.010	0.032	mg/kg	J+	HR-MS, MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Mercury, Total	SW7471	RCR-SS6 (1')	2108721-044A	0.0089	0.032	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS7 (0.5')	2108721-045A	0.10	0.17	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS8 (1')	2108721-048A	0.021	0.031	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-BD2	2108721-052A	0.012	0.033	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-BD3	2108721-053A	0.010	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-BD4	2108721-054A	0.0086	0.034	mg/kg	J+	HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (0')	2108721-001A	0.21	0.032	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB2 (0')	2108721-007A	0.094	0.033	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB4 (0')	2108721-018A	0.063	0.034	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB4 (2')	2108721-019A	0.068	0.033	mg/kg	J+	ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SB1 (2.5')	2108721-002A	0.035	0.16	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (4')	2108721-003A	0.0054	0.035	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (5')	2108721-004A	0.0041	0.036	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (7.5')	2108721-005A	0.0035	0.031	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB1 (8')	2108721-006A	0.0043	0.035	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (2.5')	2108721-009A	0.029	0.036	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (5')	2108721-010A	0.0054	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (7.5')	2108721-011A	0.0045	0.036	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (8')	2108721-012A	0.0050	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (0')	2108721-013A	0.031	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (2.5')	2108721-014A	0.011	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (5')	2108721-015A	0.022	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (7.5')	2108721-016A	0.0082	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB3 (8')	2108721-017A	0.012	0.033	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB4 (2.5')	2108721-020A	0.0084	0.032	mg/kg	J+	ERPD-MS, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SS3 (0.5')	2108721-037A	0.20	0.031	mg/kg	J+	ERPD-FD, HR-MS

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Mercury, Total	SW7471	RCR-SS9 (1')	2108721-050A	0.21	0.033	mg/kg	J+	ERPD-FD, HR-MS
Mercury, Total	SW7471	RCR-BD1	2108721-051A	0.12	0.034	mg/kg	J+	ERPD-FD, HR-MS
Mercury, Total	SW7471	RCR-BD6	2108721-056A	0.043	0.036	mg/kg	J+	ERPD-FD, HR-MS
Mercury, Total	SW7471	RCR-BD5	2108721-055A	0.030	0.031	mg/kg	J+	ERPD-FD, HR-MS, MDLRL
Mercury, Total	SW7471	RCR-SB2 (2')	2108721-008A	0.062	0.031	mg/kg	J+	ERPD-FD, ERPD-MS, HR-MS
Mercury, Total	SW7471	RCR-SS10 (0.5')	2108A86-001A	0.39	0.16	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-SS11 (0.5')	2108A86-003A	0.095	0.032	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-SS11 (1')	2108A86-004A	0.14	0.035	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-BD7	2108A86-005A	0.079	0.033	mg/kg	J-	ERPD-FD, LR-LCS
Mercury, Total	SW7471	RCR-SS10 (1')	2108A86-002A	0.011	0.034	mg/kg	J-	ERPD-FD, LR-LCS, MDLRL
MTBE	SW8260B	RCR-SB5 (5')	2108721-027a	0.35	0.032	mg/kg	J	ERPD-FD
MTBE	SW8260B	RCR-BD2	2108721-052a	0.071	0.031	mg/kg	J	ERPD-FD
MTBE	SW8260B	RCR-SB3 (5')	2108721-015a	0.032	0.048	mg/kg	J	MDLRL
Naphthalene	8270D	RCR-SB2 (2')	2108721-008A	0.441	0.263	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SB5 (5')	2108721-027A	0.0337	0.0118	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SB6 (3')	2108721-032A	26.6	0.247	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SS3 (0.5')	2108721-037A	5.50	0.498	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD1	2108721-051A	1.14	0.131	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD2	2108721-052A	0.137	0.0212	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD3	2108721-053A	50.6	0.248	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD4	2108721-054A	0.200	0.0127	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD5	2108721-055A	0.0767	0.0260	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-BD6	2108721-056A	14.1	0.475	mg/kg	J	ERPD-FD
Naphthalene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
Naphthalene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Naphthalene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.035	0.061	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Naphthalene	SW8260B	RCR-SB3 (5')	2108721-015a	0.063	0.097	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.035	0.078	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SB4 (5')	2108721-021a	0.017	0.052	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SB4 (8')	2108721-023a	0.030	0.081	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SB6 (2.5')	2108721-031A	33	39	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SB6 (3')	2108721-032A	57	100	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SS3 (0.5')	2108721-037A	24	39	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SS3 (1')	2108721-038A	26	39	mg/kg	J	MDLRL
Naphthalene	SW8270C	RCR-SS4 (1')	2108721-040a	2.1	3.9	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-SS7 (1')	2108721-046a	0.022	0.058	mg/kg	J	MDLRL
Naphthalene	SW8260B	RCR-BD4	2108721-054a	0.015	0.052	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.021	0.15	mg/kg	J+	HR-SUR, MDLRL
n-Butylbenzene	SW8260B	RCR-SB1 (5')	2108721-004a	0.017	0.14	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.054	0.53	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB3 (0')	2108721-013a	0.082	0.10	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB4 (2')	2108721-019a	0.085	0.73	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB4 (2.5')	2108721-020a	0.039	0.12	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB4 (8')	2108721-023a	0.012	0.12	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB5 (5')	2108721-027a	0.034	0.096	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SB6 (0')	2108721-030a	0.038	0.15	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS2 (0.5')	2108721-035a	0.089	0.10	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS5 (0.5')	2108721-041a	0.14	0.15	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS5 (1')	2108721-042a	0.077	0.15	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS6 (1')	2108721-044a	0.037	0.11	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-SS7 (1')	2108721-046a	0.011	0.086	mg/kg	J	MDLRL
n-Butylbenzene	SW8260B	RCR-BD2	2108721-052a	0.037	0.094	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
n-Propylbenzene	SW8260B	RCR-SB1 (4')	2108721-003a	0.035	0.049	mg/kg	J+	HR-SUR, MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (2.5')	2108721-002a	0.028	0.039	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (5')	2108721-004a	0.021	0.047	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (7.5')	2108721-005a	0.031	0.10	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB1 (8')	2108721-006a	0.0084	0.045	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB2 (2')	2108721-008a	0.094	0.18	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (2.5')	2108721-014a	0.021	0.031	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (5')	2108721-015a	0.017	0.048	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (7.5')	2108721-016a	0.022	0.039	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB3 (8')	2108721-017a	0.0093	0.04	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB4 (2')	2108721-019a	0.094	0.24	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB4 (7.5')	2108721-022a	0.016	0.037	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SB5 (4')	2108721-026a	0.047	0.23	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SS6 (1')	2108721-044a	0.0078	0.037	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-SS7 (1')	2108721-046a	0.018	0.029	mg/kg	J	MDLRL
n-Propylbenzene	SW8260B	RCR-BD1	2108721-051a	0.064	0.17	mg/kg	J	MDLRL
Phenanthrene	8270D	RCR-SB2 (2')	2108721-008A	3.41	0.263	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-SB6 (3')	2108721-032A	8.20	0.247	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-SS3 (0.5')	2108721-037A	3.71	0.498	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD1	2108721-051A	8.75	0.131	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD2	2108721-052A	0.148	0.0212	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD3	2108721-053A	16.7	0.0248	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD4	2108721-054A	0.106	0.0127	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD5	2108721-055A	0.0605	0.026	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-BD6	2108721-056A	3.57	0.0238	mg/kg	J	ERPD-FD
Phenanthrene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Phenanthrene	8270D	RCR-SB5 (5')	2108721-027A	ND	0.0118	mg/kg	UJ	ERPD-FD
Phenanthrene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Phenol	SW8270C	RCR-SB2 (8')	2108721-012a	0.14	0.20	mg/kg	J	MDLRL
Phenol	SW8270C	RCR-SB5 (8')	2108721-029A	0.091	0.20	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB1 (4')	2108721-003a	0.021	0.049	mg/kg	J+	HR-SUR, MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB1 (5')	2108721-004a	0.021	0.047	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB1 (7.5')	2108721-005a	0.053	0.10	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB2 (2')	2108721-008a	0.049	0.18	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB3 (0')	2108721-013a	0.015	0.034	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB4 (0')	2108721-018a	0.074	0.25	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SB4 (2')	2108721-019a	0.11	0.24	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SS5 (0.5')	2108721-041a	0.039	0.048	mg/kg	J	MDLRL
p-Isopropyltoluene	SW8260B	RCR-SS5 (1')	2108721-042a	0.035	0.051	mg/kg	J	MDLRL
Pyrene	8270D	RCR-SB2 (2')	2108721-008A	2.05	0.263	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SB5 (5')	2108721-027A	0.362	0.0118	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SB6 (3')	2108721-032A	2.47	0.247	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SS3 (0.5')	2108721-037A	1.61	0.498	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD1	2108721-051A	6.49	0.131	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD2	2108721-052A	2.73	0.0212	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD3	2108721-053A	4.98	0.0248	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD4	2108721-054A	0.0266	0.0127	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD5	2108721-055A	0.053	0.026	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-BD6	2108721-056A	1.97	0.0238	mg/kg	J	ERPD-FD
Pyrene	8270D	RCR-SB4 (5')	2108721-021A	ND	0.0126	mg/kg	UJ	ERPD-FD
Pyrene	8270D	RCR-SS9 (1')	2108721-050A	ND	0.0231	mg/kg	UJ	ERPD-FD
Selenium, Total	6020	RCR-BD2	2108721-052A	3.5	1.0	mg/kg	J	ERPD-FD

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Selenium, Total	6020	RCR-SB5 (5')	2108721-027A	1.4	2.1	mg/kg	J	ERPD-FD, MDLRL
Selenium, Total	6020	RCR-SB1 (0')	2108721-001A	1.3	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB4 (0')	2108721-018A	2.0	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB4 (7.5')	2108721-022A	1.7	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (2.5')	2108721-025A	1.5	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (4')	2108721-026A	1.6	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (7.5')	2108721-028A	1.7	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB5 (8')	2108721-029A	1.8	2.1	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB6 (0')	2108721-030A	1.3	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB6 (2.5')	2108721-031A	1.4	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SB6 (3')	2108721-032A	1.5	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS1 (0.5')	2108721-033A	1.3	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS1 (1')	2108721-034A	1.7	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS2 (0.5')	2108721-035A	1.5	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS2 (1')	2108721-036A	1.6	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS3 (1')	2108721-038A	1.1	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS4 (0.5')	2108721-039A	1.4	2.0	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS4 (1')	2108721-040A	1.4	2.1	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS5 (0.5')	2108721-041A	1.3	1.9	mg/kg	J	MDLRL
Selenium, Total	6020	RCR-SS6 (0.5')	2108721-043A	1.5	2.0	mg/kg	J	MDLRL
Styrene	SW8260B	RCR-SS3 (1')	2108721-038a	0.022	0.055	mg/kg	J	MDLRL
tert-Butylbenzene	SW8260B	RCR-SB6 (2.5')	2108721-031a	0.063	0.066	mg/kg	J	MDLRL
tert-Butylbenzene	SW8260B	RCR-SB6 (3')	2108721-032a	0.14	0.41	mg/kg	J	MDLRL
tert-Butylbenzene	SW8260B	RCR-SS2 (1')	2108721-036a	0.010	0.032	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB1 (4')	2108721-003a	0.011	0.049	mg/kg	J+	HR-SUR, MDLRL
Toluene	SW8260B	RCR-SB1 (0')	2108721-001a	0.011	0.044	mg/kg	J	MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Toluene	SW8260B	RCR-SB2 (2')	2108721-008a	0.026	0.18	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB2 (7.5')	2108721-011a	0.023	0.041	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB3 (0')	2108721-013a	0.0051	0.034	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB4 (2')	2108721-019a	0.041	0.24	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB6 (2.5')	2108721-031a	0.018	0.066	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SB6 (3')	2108721-032a	0.24	0.41	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.012	0.027	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS1 (1')	2108721-034a	0.0051	0.035	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS2 (1')	2108721-036a	0.0079	0.032	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS7 (1')	2108721-046a	0.0069	0.029	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS8 (0.5')	2108721-047a	0.0058	0.037	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-SS9 (1')	2108721-050a	0.0085	0.039	mg/kg	J	MDLRL
Toluene	SW8260B	RCR-BD6	2108721-056a	0.0043	0.031	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SS5 (1')	2108721-042A	2,200	49	mg/kg	J+	HR-SUR
TPH DRO	SW8015	RCR-SB2 (2')	2108721-008A	24,000	980	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-SB5 (5')	2108721-027A	1,200	470	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-BD1	2108721-051A	46,000	490	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-BD2	2108721-052A	710	200	mg/kg	J	ERPD-FD
TPH DRO	SW8015	RCR-SB3 (5')	2108721-015A	6.4	9.9	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SB3 (8')	2108721-017A	6.3	9.1	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SB5 (7.5')	2108721-028A	9.5	9.8	mg/kg	J	MDLRL
TPH DRO	SW8015	RCR-SS9 (1')	2108721-050A	9.4	9.6	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB1 (4')	2108721-003a	9.6	4.9	mg/kg	J+	HR-MS
TPH GRO	SW8015	RCR-SB1 (5')	2108721-004a	37	4.7	mg/kg	J+	HR-MS
TPH GRO	SW8015	RCR-SB3 (5')	2108721-015a	5.0	4.8	mg/kg	J+	HR-MS
TPH GRO	SW8015	RCR-SB6 (0')	2108721-030a	2.8	4.9	mg/kg	J+	HR-MS, MDLRL

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
TPH GRO	SW8015	RCR-SS8 (1')	2108721-048a	1.6	4.9	mg/kg	J+	HR-MS, MDLRL
TPH GRO	SW8015	RCR-SB1 (2.5')	2108721-002a	2.2	3.9	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB3 (7.5')	2108721-016a	3.0	3.9	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB3 (8')	2108721-017a	1.5	4.0	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SB4 (7.5')	2108721-022a	2.9	3.7	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-SS6 (0.5')	2108721-043a	1.1	3.4	mg/kg	J	MDLRL
TPH GRO	SW8015	RCR-BD6	2108721-056a	1.2	3.1	mg/kg	J	MDLRL
TPH ORO	SW8015	RCR-SS5 (1')	2108721-042A	390	250	mg/kg	J+	HR-SUR
TPH ORO	SW8015	RCR-SB2 (2')	2108721-008A	5,300	4,900	mg/kg	J	ERPD-FD
TPH ORO	SW8015	RCR-BD1	2108721-051A	9,500	2,400	mg/kg	J	ERPD-FD
Xylenes, Total	SW8260B	RCR-SB1 (0')	2108721-001a	0.039	0.088	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB1 (5')	2108721-004a	0.052	0.094	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB1 (7.5')	2108721-005a	0.18	0.20	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB1 (8')	2108721-006a	0.082	0.091	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SB2 (8')	2108721-012a	0.048	0.084	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SS1 (0.5')	2108721-033a	0.017	0.055	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SS2 (1')	2108721-036a	0.048	0.064	mg/kg	J	MDLRL
Xylenes, Total	SW8260B	RCR-SS9 (0.5')	2108721-049a	0.035	0.070	mg/kg	J	MDLRL

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Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 319233

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 319233
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
joel.stone	Approved for OCD record retention purposes.	8/16/2024