

Western Refining Southwest LLC

A subsidiary of Marathon Petroleum Corporation I-40 Exit 39 Jamestown, NM 87347

June 5, 2024

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

RE: Response to Disapproval Revised, Area of Concern 17 – Railroad Tracks Investigation Work Plan Western Refining Southwest LLC, Marathon Gallup Refinery EPA ID # NMD000333211 HWB-WRG-23-008

Dear Mr. Nance:

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, Area of Concern 17 – Railroad Loading/Unloading Facility Investigation Work Plan letter* dated February 8, 2024. A timeline of the report is as follows:

- Investigation Work Plan, submitted January 10, 2023
- Disapproval, received February 8, 2024
- Clarification regarding Comment 10a, e-mail correspondence, sent April 15, 2024
- Revised Comment 10a, e-mail correspondence, received April 16, 2024

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 (Attachment B) and the revised report (Attachment C).

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.



Western Refining Southwest LLC

A subsidiary of Marathon Petroleum Corporation I-40 Exit 39 Jamestown, NM 87347

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 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, Marathon Gallup Refinery

1.1.00.

fim R. Wilkins Vice President

Enclosure

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
K. Luka, Marathon Petroleum Corporation
R. Harris, Marathon Petroleum Company
J. Moore, Marathon Gallup Refinery
H. Jones, Trihydro Corporation

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ATTACHMENT A

RESPONSE TO COMMENTS

NMED Comment	Western Response
Comment 1:	Response 1:
The Work Plan must comply with the direction provided by Comment 10C of	The title of this Work Plan has been revised to, "Revised Area of Concern 17 -
NMED's April 25, 2022 Disapproval Rail Car Loading Area Release Soil	Railroad Tracks Investigation Work Plan." The title of this Work Plan now
Sampling Investigation Report. The title of the Work Plan does not indicate	clearly indicates its purpose, which is to investigate on and along the railroad
that the Work Plan was prepared to investigate potential contamination on and	tracks in Area of Concern (AOC) 17.
along the railroad tracks. Comment 10 of NMED's November 2, 2023 Second	
Disapproval [Revised] Rail Car Loading Area Release Soil Sampling	
Investigation Report states, "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 title of the Work Plan must be	
revised to clearly indicate its purpose, which is to investigate on and along the	
railroad tracks in the vicinity of AOC 17.	

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NMED Comment	Western Response
Comment 2:	Response 2:
In the Executive Summary, page 1 of 10, second paragraph, Section 1.0 (Introduction), page 4 of 10, third paragraph, and Section 3 (Scope of Activities), page 6 of 10, second paragraph, the Permittee states, "[s]amples will be analyzed for methyl tert-butyl ether, benzene, toluene, ethylbenzene, total xylenes, total petroleum hydrocarbons (TPH) — diesel range organics [DRO], TPH — gasoline range organics [GRO], TPH — oil range organics [ORO], and the Resource Conservation and Recovery Act [RCRA]-8 metals." The analytical suite for the soil samples must be consistent with that of the soil samples collected during the 2021 investigation. Propose to analyze the soil samples for TPH-DRO, TPH-GRO, TPH-ORO, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals in the revised Work Plan. Note that metals (e.g., arsenic, lead) and SVOCs (constituents of creosote / coal tar) may potentially be present on and along railroad tracks because rail ties are often treated with such chemicals.	The Executive Summary, page 1 of 12, second paragraph, has been revised to state, "[s]amples will be analyzed for volatile organic compounds, semivolatile organic compounds, total petroleum hydrocarbons (TPH) – diesel range organics, TPH – gasoline range organics, TPH – oil range organics, and the Resource Conservation and Recovery Act-8 metals." Also, Section 1.0 (Introduction), page 4 of 12, third paragraph, has been revised to state, "[s]amples will be analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH) – diesel range organics (DRO), TPH – gasoline range organics (GRO), TPH – oil range organics (ORO), and the Resource Conservation and Recovery Act (RCRA) 8 metals." Additionally, Section 1.0, (Introduction), page 4 of 12, third paragraph, has been revised to state, "[t]he same constituent list will be used as during the 2021 investigation following NMED's recommendation. The Refinery has also revised Section 3.0 (Scope of Activities), page 6 of 12, third paragraph to state, "[s]amples will be analyzed for VOCs by Method 8260B/1311, SVOCs by Method 8270/8270SIM TPH-DRO by Method 8015M/D, TPH-GRO by Method 8015D, TPH-ORO by Method 8015M/D, and the RCRA 8 metals by Method 6010."

Comment 3:Response 3:In Section 1.0 (Introduction), page 4 of 10, second and third paragraphs, the Permittee states, "[t]his Work Plan will investigate portions of AOC 17 that were not paluate and characterize soil conditions in AOC 17 [and t]his Work Plan proposes a sampling plan to evaluate the potential contamination in AOC 17 that was not previously investigated as part of the 2017 gasoline release and the 2019 diesel release. Additionally, this Work Plan will fill dtat gaps from the "Rail Car Loading Area Release Soil Sampling Investigation as access allows." Comment 10c of NMED's April 25, 2022 Disapproval originally directed the Permittee to "[p]ropose to investigation and now the Plan should be to comply with Comment 10c of the NMED's April 25, 2022 Disapproval and November 2, 2023 "Second Disapproval (see also Comment 1 above). The Work Plan must only propose to investigate on and along the rail tracks thus, the investigation of potential contamination and potential remediation on and along the rail tracks should be conducted separate from the rest of the AOC 17 investigation. The data gaps identified in the NMED's April 25, 2022. Disapproval (see also Comments 10a, 10b, and 10d) and November 2, 2023 Second Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Second Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Second Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Second Disapproval (see, Comments 10a, 10b, and 10d) and November 2, 2023 Second Disapproval (see, Comments 10a, 10b, and 10d	NMED Comment	Western Response
Permittee states, "[1]his Work Plan will investigate portions of AOC 17 that were not part of the Rail Car Loading Area Release Soil Sampling Investigation to evaluate and characterize soil conditions in AOC 17 [and t]his Work Plan proposes a sampling plan to evaluate the potential contamination AOC 17 that was not previously investigated as part of the 2017 gasoline release and the 2019 dised release. Additionally, this Work Plan will fill dat gaps from the "Rail Car Loading Area Release Soil Sampling Investigation Report" (Western 2021) as access allows." Comment 10c of NMED's April 25, 2022 Disapproval originally directed the Permittee to "[p]ropose to investigate investigation work plan, as appropriate, or propose to defer the investigation along the rail tracks until they are no longer in use." The purpose of this Work Plan should be to comply with Comment 10C of the NMED's April 25, 2022 Disapproval (see also Comment 1 dove). The Work Plan must only propose to investigate on and along the rail tracks; thus, the investigation opotential contamination on and along the rail tracks may be different from those outside of the rail tracks; thus, the investigation opotential contamination on and along the rail tracks should be conducted separate from the rest of the ACO 17 investigation. The data gaps identified in the NMED's April 25, 2022 Disapproval (e.g., Comments 10a, 10b, and 10d) and November 2, 2023 Second Disapproval Second Disapproval [Revised] Rail Car Loading Area Release Soil Sampling Investigation Report, "have been addressed in the "Rail Car Loading Area Release Soil Sampling Investigation Report, the state state area and along the rail tracks struct of the ACO 17 investigation Report, "have been addressed in the "Rail Car Loading Area Release Soil Sampling Investigation Report, "etc." Comments 4, 6, 8, 10, 11, 13, and 15) must be addressed in the second phase investigation work plan, as directed in the NMED's November 2, 2023. Revise	Comment 3:	Response 3:
rail tracks in the vicinity of AOC 17.	In Section 1.0 (Introduction), page 4 of 10, second and third paragraphs, the Permittee states, "[t]his Work Plan will investigate portions of AOC 17 that were not part of the Rail Car Loading Area Release Soil Sampling Investigation to evaluate and characterize soil conditions in AOC 17 [and t]his Work Plan proposes a sampling plan to evaluate the potential contamination in AOC 17 that was not previously investigated as part of the 2017 gasoline release and the 2019 diesel release. Additionally, this Work Plan will fill data gaps from the "Rail Car Loading Area Release Soil Sampling Investigation Report" (Western 2021) as access allows." Comment 10c of NMED's April 25, 2022 Disapproval originally directed the Permittee to "[p]ropose to investigate the extent of potential contamination along the rail tracks in a separate investigation work plan, as appropriate, or propose to defer the investigation along the rail tracks until they are no longer in use." The purpose of this Work Plan should be to comply with Comment 10C of the NMED's April 25, 2022 Disapproval (see also Comment 1 above). The Work Plan must only propose to investigate on and along the rail tracks in the vicinity of AOC 17. The nature of contamination and potential remediation on and along the rail tracks may be different from those outside of the rail tracks; thus, the investigation of potential contamination on and along the rail tracks should be conducted separate from the rest of the AOC 17 investigation. The data gaps identified in the NMED's April 25, 2022 Disapproval (e.g., Comments 10a, 10b, and 10d) and November 2, 2023 Second Disapproval Second Disapproval [Revised] Rail Car Loading Area Release Soil Sampling Investigation Report (e.g., Comments 4, 6, 8, 10, 11, 13, and 15) must be addressed in the second phase investigation work plan, as directed in the NMED's November 2, 2023. Revise the Work Plan to solely investigate potential contamination on and along the	Section 1.0 (Introduction), page 4 of 12, second paragraph, has been revised to state, "[t]his Work Plan proposes a sampling plan that will investigate the area on and along the Railroad Tracks within AOC 17 to evaluate and characterize soil conditions and determine if contamination related to the historic use of the railroad tracks is present." The Refinery acknowledges the purpose of this Work Plan should comply with Comment #10C of NMED's April 25, 2022, Disapproval. The Work Plan has been revised to propose to only investigate potential contamination on and along the railroad tracks within AOC 17. Additionally, the data gaps identified in NMED's April 25, 2022 Disapproval and November 2, 2023 "Second Disapproval [Revised] Rail Car Loading Area Release Soil Sampling Investigation Report," have been addressed in the "Rail Car Loading Area Release Soil Sampling Phase II Investigation Work" Plan submitted to NMED

NMED Comment	Western Response
Comment 4:	Response 4:
Sections 2.0 (Site Conditions), 2.1 (Surface Conditions), and 2.2 (Subsurface Conditions), page 5 of 10, lack description that is specific to AOC 17 and the rail tracks. Include more specific information that is relevant to this investigation in the revised Work Plan.	Section 2.0 (Site Conditions), page 5 of 12, second paragraph, now includes, "[t]here are two sets of railroad tracks located within AOC 17 which run parallel to each other approximately 15 feet (ft) apart that are currently not in use." Section 2.1 (Surface Conditions), page 5 of 12, now includes, "[t]he railroad tracks within AOC 17 slope gently to the north over approximately 850 ft. The elevation of the south end of the tracks is approximately 6,945 ft amsl while the elevation of the north end of the tracks lies the track ballast and a concrete secondary containment system which runs beneath the tracks of the rail loading rack." Section 2.2 (Subsurface Conditions), page 5 of 12, now also states, "Depth to groundwater in nearby wells OW-58A and RW-1 has historically ranged from 23 to 32 ft bgs and 26 to 33 ft bgs, respectively."
Comment 5:	Response 5:
In Section 3.0 (Scope of Activities), page 6 of 10, first paragraph, the Permittee states, "[t]he investigative activities proposed in this Work Plan are proposed to gain knowledge of the subsurface in the areas of AOC 17 that were not investigated in response to the 2017 gasoline release and the 2019 diesel release. The investigation activities are designed to address data gaps from the investigation results summarized in the "Rail Car Loading Area Release Soil Sampling Investigation Report", revised December 2022 (Western 2022a)." As stated in Comments 1 and 3 above, this Work Plan must propose the investigation on and along the rail tracks in the vicinity of AOC 17. Other data gaps identified in the 2021 investigation must be addressed in the second phase investigation work plan, as directed. Revise the	Section 3.0 (Scope of Activities), page 6 of 12, first paragraph, has been revised to state, "[t]he investigative activities proposed in this Work Plan are to determine if contamination is present on and along the rail tracks in the vicinity of AOC 17from the historical use of the railroad tracks in AOC 17." Please see Response 3, paragraph 2 regarding the submission of the second phase investigation work plan that addresses data gaps identified in the 2021 investigation.

NMED Comment	Western Response
scope of activities for the Work Plan to investigate on and along the rail tracks in the vicinity of AOC 17.	
Comment 6:	Response 6:
 In Section 3.0 (Scope of Activities), page 6 of 10, second paragraph, the Permittee states, "[b]ecause the excavation would be backfilled with clean soil (pending NMED approval), proposed soil borings for the AOC 17 investigation are not within the proposed excavation footprint." Address the following: a) Comment 15 of NMED's November 2, 2023 Second Disapproval states, "[t]he 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." The detail of the proposed excavation must be provided in the second phase investigation work plan and revise the Work Plan accordingly. b) NMED is aware that separate phase hydrocarbon (SPH) has been seeping out from the surface soil in the borrow pit area. The soil sourced from the borrow pit area may not be clean and may be inappropriate for the use as backfill. Clarify how clean soil will be sourced and describe the provision to ensure the quality of the soil used as backfill in the second phase investigation work plan, as appropriate. 	 The Refinery has removed from Section 3.0 (Scope of Activities), page 6 of 12, second paragraph, the statement, "[b]ecause the excavation would be backfilled with clean soil (pending NMED approval), proposed soil borings for the AOC 17 investigation are not within the proposed excavation footprint." Additionally, Section 3.0 (Scope of Activities), page 6 of 12, second paragraph, has been revised to state, "[b]orings will be backfilled with bentonite and/or clean sand provided by the drilling contractor." a) Details regarding the proposed excavation have been provided in the "Rail Car Loading Area Release Phase II Investigation Work Plan" submitted to NMED on April 30, 2024. This "Revised Area of Concern 17 – Railroad Tracks Investigation Work Plan" has been revised, as directed by NMED, to only investigate on and along the rail tracks. All investigative activities related to the historical rail car releases have been removed from the Work Plan. b) Details regarding how clean soil will be sourced and the provisions that will be taken to ensure the quality of the soil used as backfill have been provided in the Rail Car Loading Area Release Phase II Investigation Work Plan Submitted to NMED on April 30, 2024.

NMED Comment	Western Response
Comment 7:	Response 7:
In Section 3.0 (Scope of Activities), page 6 of 10, third paragraph, the Permittee states, "[t]herefore, 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 sitewide basis. As such, results from this investigation will not be compared to the DAF SL-SSLs in the subsequent investigation report." The groundwater beneath the vadose zone must be protected from all potential contaminants of concern (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. In addition, the analysis of contaminant migration from the vadose zone to groundwater must be conducted in a site-specific manner because the severity of contamination and the COCs are specific to each AOC and SWMU. The investigation report must include the analysis of contaminant migration from the vadose zone to groundwater. Revise the Work Plan accordingly.	The Refinery acknowledges that contaminant migration from the vadose zone to groundwater must be conducted in a site-specific manner because the contaminants of concern are specific to each AOC. Therefore, Section 3.0 (Scope of Activities), page 6 of 12, last paragraph, has been revised to state Regardless, at NMED's direction, an analysis of contaminant migration from the vadose zone to groundwater will be conducted to determine if an interim response is required for the purpose of protecting the groundwater."
Comment 8:	Response 8:
In Section 3.0 (Scope of Activities), page 6 of 10, third paragraph, the Permittee states, "[t]he combination of 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 sitewide basis." Address the following:	 a) The Refinery acknowledges that an analysis of contaminant migration from the vadose zone to groundwater must be conducted in a site-specific manner and has revised the Work Plan accordingly. Please see Response 7 regarding the revision made to the Work Plan. b) Please see Response 7 for the revision made to the Work Plan regarding the evaluation of contaminant migration from the vadose zone to groundwater.
a) The analysis of contaminant migration from the vadose zone to groundwater must be conducted in a site-specific manner (e.g., per each AOC/SWMU) because the severity of contamination and the	

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NMED Comment	Western Response
contaminants of concern (COCs) are specific to each AOC and SWMU. Revise the Work Plan accordingly.	
 b) Because contamination associated with metals and SVOCs are often associated with rail tracks, metals and SVOCs may potentially be the COCs at the site and present in the Rail Car Loading Area. Metals and SVOCs are more recalcitrant than VOCs and the quoted statement may not apply to metals and SVOCs. 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. In the revised Work Plan, include a provision to evaluate potential risk for migration of contaminants from soil to groundwater (i.e., comparison of DAF SSLs against soil concentrations). See also Comment 7 above. 	
Comment 9:	Response 9:
In Section 4.0 (Investigation Methods), page 7 of 10, first paragraph, the Permittee states, "[s]amples will be field screened using a PID for evidence of VOCs." A discussion associated with the soil sampling procedures must be included within the text of the Work Plan, not as a standard operating procedure (SOP) attached in an appendix, in accordance with Permit Section IV.J.I. Revise the Work Plan accordingly.	The Refinery acknowledges that soil sampling procedures must be included within the text of the Work Plan and not as an SOP as an appendix. Section 4.1 (Sample Collection Procedures), page 7 of 12, first paragraph, has been revised to state, "[s]amples will be collected in accordance with the soil sampling procedures discussed below." The Work Plan has been updated to include the soil sampling procedures in the text and removed the SOP - Soil Sampling appendix from the Work Plan.
Comment 10:	Response 10:
In Section 4.1 (Sample Collection Procedures), page 7 of 10, second paragraph, the Permittee states, "[p]roposed soil sample locations are shown on Figure 2. Samples will be collected in accordance with the "Standard Operating Procedures — Soil Sampling" (Appendix A). Details related to	a) Figure 2 has been revised to include only soil boring locations on and along the railroad tracks within AOC 17. Per NMED's Revised Comment 10a, the sampling interval has been revised to every 100 feet on and along

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NMED Comment	Western Response
sample collection will be documented on the boring log field forms (Appendix B)." Address the following:	the railroad tracks and will target any additional areas with observed surface staining as applicable.
 a) Revised Comment 10a per NMED email dated April 16, 2024: Revise Figure 2 (Proposed AOC 17 Sample Locations AOC 17 Investigation Work Plan) to limit sampling locations on and along the rail tracks for this Work Plan. NMED recommends advancing one soil boring below the ballast in a frequency of approximately every 100 feet interval on/along the rail tracks as the first step of the investigation. The sample locations must target the areas where surface staining is observed, as applicable. Note that if the constituent concentrations in the soil samples exceed the applicable screening levels during this investigation, NMED may require additional investigations (i.e., submission of the second phase investigation work plan) to further delineate contamination at that site. Initial Comment 10a: Revise Figure 2 (Proposed AOC 17 Sample Locations AOC 17 Investigation Work Plan) to limit sampling locations on and along the rail tracks for this Work Plan. NMED recommends collecting soil samples east, west, and center of the rail track below the 	 b) Boring location RCR-SB-6 will not be included in the revised Figure 2 because it is related to the historical hydrocarbon releases and not the Railroad Tracks Investigation Work Plan. Details to determine the potential eastward extent of contamination across the railroad tracks from soil boring RCR-SB-6 has been provided in the "Rail Car Loading Area Release Phase II Investigation Work Plan" that was submitted to NMED on April 30, 2024. c) Details of collecting soil samples on the railroad tracks below the ballast adjacent to soil boring RCR-SB-6 has been provided in the "Rail Car Loading Area Release Phase II Investigation Work Plan" that was submitted to NMED on April 30, 2024. d) Please see Response 9 regarding soil sampling procedures being included within the text of the Work Plan and the removal of the SOP - Soil Sampling appendix.
 ballast in a frequency of every 50 feet interval. b) Identify sampling location RCR-SB-6 in the revised Figure 2. Include a provision to determine the eastward extent of the contamination across the rail track from sampling location RCR-SB-6 in the second phase investigation work plan. 	 e) Section 4.1 (Sample Collection Procedures), page 7 of 12, third paragraph has been included to state, "[a]ll reusable sampling equipment will be decontaminated prior to installing a boring. All equipment that will come in contact with soils will be decontaminated with Liquinox® using a fourstage decontamination system consisting of two detergent/water washes and two deionized rinses. Equipment decontamination will be recorded in
c) Propose to collect soil samples on the rail track below the ballast adjacent to sampling location RCR-SB-6 in the revised Work Plan.	the field logbook."
 d) It is not appropriate to reference an appendix to describe the soil sampling procedures. A discussion associated with the soil sampling procedures must be included within the text of the Work Plan in accordance with 	

NMED Comment	Western Response
 Permit Section IV.J.I. Include the discussion associated with the soil sampling procedures in the revised Work Plan. See Comment 9 above. e) An equipment decontamination procedure was not discussed in the Work Plan. Include a discussion regarding equipment decontamination procedures in the revised Work Plan. 	
Comment 11:	Response 11:
In Section 4.1 (Sample Collection Procedures), page 7 of 10, second paragraph, the Permittee states, "[s]ample-specific information will include field sample identification, time of sample collection, sample start and end depth, collection method, sample type (i.e., composite or aliquot), soil classification and characteristics, deviations from or clarification of sampling procedures, and other observations." The Permittee is reminded that composite samples are not acceptable for use as site characterization data which must be acknowledged and stated in the revised Work Plan. Furthermore, Section 5 of Appendix A (Standard Operating Procedure — Soil Sampling) states that "the material to be sampled will be easy to access, and simple "grab" samples collected using a shovel, trowel, or drive sampler are appropriate." There should be three different designations of sample type (i.e., composite, aliquot, and grab) stated; however, it is unclear which sample type will be collected to acquire site characterization data. Revise the Work Plan to discuss the sample collection procedures in the report narrative and clarify the statement to state that the sample collection method(s) will be reported in the investigation report.	The Refinery acknowledges that composite samples are not acceptable for use as site characterization data. Section 4.1 (Sample Collection Procedures), page 7 of 12, first paragraph, now includes, "[t]he Refinery acknowledges that composite sampling is not acceptable for site characterization and will not collect composite samples during this investigation. In addition, the sample collection methods will be reported in the investigation report." Additionally, Appendix A (SOP – Soil Sampling) has been removed from this Work Plan and the sample collection procedure has been included within the report text in Section 4.1 (Sample Collection Procedures).
Comment 12:	Response 12:
In Section 4.1 (Sample Collection Procedures), page 7 of 10, fifth paragraph, the Permittee states, "[a]fter collecting the PID reading, samples will be collected from 6 to 12 inches bgs, just above the water table (if encountered),	 a) The Refinery acknowledges that there is a typographical error at the end of the identified sentence in the Work Plan and has corrected it. In Section 4.1 (Sample Collection Procedures), page 8 of 12, first paragraph, the

NMED Comment	Western Response
 the bottom of the boring, and the interval will [sic] the highest PID reading." Address the following: a) The statement appears to contain a typographical error at the end of the sentence. Correct the typographical error in the revised Work Plan. b) Section 3.0 states, "[s]oil borings will be completed to a total depth of 10 ft bgs or until refusal, whichever occurs first." Based on the historical gauging data from the neighboring wells (e.g., RW-1 and OW-58), the depth to groundwater (DTW) in the vicinity of the rail tracks is expected to be approximately 20 feet below ground surface (bgs) to 30 feet bgs. Accordingly, the water table is not expected to be encountered at the depths shallower than 10 feet bgs. Propose to extend the depth of soil borings to reach the water table or explain why the termination depth of 10 feet bgs is sufficient for this investigation in the revised Work Plan and/or second phase investigation work plan. 	 corrected sentence now states, "[a]fter collecting the PID reading, samples will be collected from 6 to 12 in. bgs or 6 to 12 in. below the ballast, just above the groundwater table (if encountered), the bottom of the boring, and the interval with the highest PID reading." b) Section 3.0 (Scope of Activities), page 6 of 12, second paragraph, has been revised to state, "[s]oil borings will be advanced to the water table, to a total depth of 35 ft, or until refusal, whichever occurs first." Additionally, the depth to which soil borings will be completed in regard to the historical Rail Car Releases has been provided in the "Rail Car Loading Area Release Phase II Investigation Work Plan" that was submitted to NMED on April 30, 2024.
Comment 13:	Response 13:
In Section 4.3 (Data Evaluation and Waste Management), page 8 of 10, last paragraph, the Permittee states, "[t]he soil analytical results will be compared to applicable NMED Residential, Construction Worker, and Industrial SSLs." In the revised Work Plan, include a provision to evaluate potential risk for migration of contaminants from soil to groundwater. See also Comments 7 and 8b above.	Section 4.3 (Data Evaluation and Waste Management), page 10 of 12, first paragraph, now includes the provision, "[a]dditionally, an evaluation of contaminant migration from the vadose zone to groundwater will be conducted to determine if an interim response is required for the purpose of protecting the groundwater by screening the results of the NMED MTGW SSLs comparison."
Comment 14:	Response 14:
In Section 4.3 (Data Evaluation and Waste Management), page 8 of 10, last paragraph, the Permittee states, "[w]aste characterization analysis will include testing for VOCs by Method 8260, semi-volatile organic compounds by Method 8270, and RCRA-8 Metals by Method 6010." Soil waste must also be analyzed for constituents which are required by the receiving landfill and	Section 4.3 (Data Evaluation and Waste Management), page 10 of 12, second paragraph, now includes the provision, "[b]efore disposal, soil cuttings will also be analyzed for any additional constituents required by the receiving landfill and soil specific waste acceptance criteria will be met before disposal."

NMED Comment	Western Response
specific waste acceptance criteria must be met before disposal. Include this	
provision in the revised Work Plan.	
Comment 15:	Response 15:
In Section 5.0 (Schedule), page 9 of 10, first paragraph, the Permittee states,	Section 5.0 (Conclusion and Schedule), page 11 of 12, first paragraph, has
"the Refinery would like to complete the work in June of 2023 before the	been revised to state, "[p]ending NMED approval, the Refinery will begin the
monsoon season, pending NMED approval of this Work Plan." Comment 5 of	investigation outside of the monsoon season."
NMED's April 25, 2022 Disapproval 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." The anticipated work schedule (i.e., June of year 2023) has	
already passed. In addition, the Work Plan was disapproved; therefore, the	
specific timeframe when the work will be implemented is uncertain at this	
time. Instead of providing a specific timeframe for the work schedule, simply	
state that the investigation work will be conducted outside the monsoon season	
in the revised Work Plan, as applicable.	

ATTACHMENT B

(PLEASE SEE ATTACHED CD)

ELECTRONIC RED-LINE/STRIKE-OUT REPORT

<u>Revised</u> Area of Concern 17 – Railroad <u>Loading/Unloading FacilityTracks</u>

Investigation Work Plan



Western Refining Southwest LLC

(D/B/A Marathon Gallup Refinery)

Gallup, New Mexico

EPA ID# NMD000333211

January 31, 2023 June 5, 2024



Executive Summary

Western Refining Southwest LLC_z (D/B/A Marathon Gallup Refinery) (Refinery) is submitting this Work Plan for a soil investigation-at on and along the railroad tracks in Area of Concern (AOC) 17—Railroad Loading and Unloading Facility. The New Mexico Environment Department (NMED) requested further investigation on and along the railroad tracks in the AOC 17 in Comment #10C of the "Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report" (NMED 2022)area based on historical hydrocarbon releases in the area in "Determination of Area of Concern (AOC) Entry to the Permit" (NMED 2021).

As summarized in the revised "Rail Car Loading Area Release Soil Sampling Investigation Report" (Western 2022a), there was a known 2017 gasoline release and a known 2019 diesel release in part of AOC 17. This Work Plan proposes to fill the data gaps from previous-investigat<u>e</u>ions and identify, or rulefor-potential contamination out, additional soil impacts within theon and along the railroad tracks within area comprised of AOC 17. as access to the area allows. This Work Plan includes installation of 924 soil borings and collection of a maximum of 96-36 soil samples. Soil borings will be installed in areas that exhibit visual impacts such as soil staining or hydrocarbon buildup. Soil samples will be collected using a geoprobe-direct-push drill rig (e.g., Geoprobe®) where possible and will target any areas with observed surface staining, as applicable. Samples will be analyzed for volatile organic compounds, methyl tert-butyl ether, benzene, toluene, ethylbenzene, total xylenes, semi-volatile organic compounds, total petroleum hydrocarbons (TPH) – diesel range organics, TPH – gasoline range organics, and the Resource Conservation and Recovery Act_-8 metals. The Refinery will prepare an investigation report summarizing the sampling results and investigation conclusions and will submit the investigation report to NMED within 150 days of the receipt of the analytical data.



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List of Acronyms and Abbreviations

%	percent
amsl	above mean sea level
AOC	Area of Concern
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
COC	chain of custody
DAF	dilution attenuation factor
DRO	diesel range organics
ft	foot or feet
GRO	gasoline range organics
<u>I-40</u>	Interstate 40
<u>in.</u>	inches
MTBE	methyl tert-butyl ether
MTGW	Migration to Groundwater
NM	New Mexico
NMED	New Mexico Environment Department
ORO	oil range organics
	·
ORO	oil range organics
oro Pid	oil range organics photoionization detector
oro Pid Qa/QC RCRA	oil range organics photoionization detector quality assurance/quality control
oro Pid Qa/QC RCRA	oil range organics photoionization detector quality assurance/quality control Resource Conservation and Recovery Act
ORO PID QA/QC RCRA Refinery	oil range organics photoionization detector quality assurance/quality control Resource Conservation and Recovery Act <u>Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery</u>
ORO PID QA/QC RCRA Refinery SL-SSL	oil range organics photoionization detector quality assurance/quality control Resource Conservation and Recovery Act <u>Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery</u> soil leachate based soil screening level
ORO PID QA/QC RCRA Refinery SL SSL SSL	oil range organics photoionization detector quality assurance/quality control Resource Conservation and Recovery Act Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery soil leachate based soil screening level soil screening level

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.



1.0 Introduction

The Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery (Refinery) is located approximately 17-<u>18.5</u>-miles east of Gallup, New Mexico (NM), along the north side of Interstate Highway <u>I-40 (I-40)</u>. The physical address is I-40, Exit #39, Jamestown, New Mexico, 87347. The Refinery property covers approximately 810 acres.

This Work Plan is for the investigation of soils <u>on and along the railroad tracks</u> in Area of Concern (AOC) 17 <u>— Railroad Loading/Unloading Facility</u> (Figure_1). The New Mexico Environment Department (NMED) <u>requested further investigation on and along the railroad tracks in AOC 17 in Comment #10C of</u> <u>the "Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report" (NMED 2022)</u>stated <u>that the "petroleum hydrocarbons were previously released and residual contamination is still present</u> <u>in AOC 17" in the "Determination of Area of Concern (AOC) Entry to the Permit" letter (NMED 2021)</u>. This Work Plan proposes a sampling plan that will investigate <u>the area on and along the railroad tracks</u> <u>within portions of AOC 17 that were not part of the Rail Car Loading Area Release Soil Sampling</u> <u>Investigation to evaluate and characterize soil conditions and determine if contamination related to the</u> <u>presence and-historic use of the railroad tracks is present in AOC 17</u>.

This Work Plan proposes a sampling plan to evaluate the potential contamination in AOC 17. that was not previously investigated as part of the 2017 gasoline release and the 2019 diesel release. Additionally, this Work Plan will fill data gaps from the "Rail Car Loading Area Release Soil Sampling Investigation Report" (Western 2021). The sampling plan includes installation of 924 soil borings and collection of a maximum of up to 96-36 soil samples. Soil borings will be installed in areas that exhibit visual impacts such as soil staining or hydrocarbon buildup. Soil samples will be collected using a geoprobe-direct-push drill rig (e.g., Geoprobe®). Samples will be analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH) diesel range organics (DRO), TPH – gasoline range organics (GRO), TPH – oil range organics (ORO), and the Resource Conservation and Recovery Act (RCRA) 8 metals. methyl tert butyl ether (MTBE), benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons (TPH) - diesel range organics (DRO), TPH - gasoline range organics (GRO), TPH - oil range organics (ORO), and the Resource Conservation and Recovery Act (RCRA)-8 metals. The same constituent list will be used as during the 2021 programinvestigation following These analytes were selected as indicator constituents based on previous soil investigations of AOC 17NMED's recommendation. The results from this investigation will be used for future engineering and remediation evaluations.



2.0 Site Conditions

The Refinery has been indefinitely idled since August October 9, 2020. Historically, the Refinery processed crude oil transported to the facility by pipeline or tanker truck. During active operation, various process units were operated at the Refinery, including alkylation, blending gas, crude distillation, diesel hydro-treating, fluid catalytic cracker, gas conditioning, isomerization, naphtha hydro-treating, reformer, saturated gas, sulfur recovery, ammonium thiosulfate, and merox treater units.

<u>Historically</u>, Refinery operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel. <u>There are two sets of railroad tracks located within AOC 17 which run parallel</u> to each other approximately 15 feet (ft) apart that are currently not in use.

2.1 Surface Conditions

Local site topographic features include higher ground in the southeast gradually sloping to a lowland fluvial plain to the northwest. Elevations on the Refinery property range from 7,040 feet (ft) above mean sea level (amsl) to 6,860 ft amsl. The AOC 17 area is approximately 6,935 ft amsl. The railroad tracks within AOC 17 slope gently to the north over approximately 850 ft. The elevation of the south end of the tracks is approximately 6,945 ft amsl while the elevation of the north end of the tracks is approximately 6,939 ft amsl. Directly under the railroad tracks lies the track ballast and a concrete secondary containment system which runs beneath the tracks of the rail loading rack.

2.2 Subsurface Conditions

The shallow subsurface soil (alluvium) is comprised of clay and silt with some inter-bedded sand layers. Beneath the alluvium is the Petrified Forest Member of the Chinle Group, which primarily consists of interbedded mudstone, siltstone, and sandstone. The Alluvium/Chinle interface is as little as 15 ft below ground surface (bgs) to over 32_ft bgs. <u>Depth to groundwater in nearby wells OW-58A and RW-1 has</u> <u>historically ranged from 23 to 32 ft bgs and 26 to 33 ft bgs, respectively.</u>



3.0 Scope of Activities

The investigative activities proposed in this Work Plan are proposed to gain knowledge of the subsurfacedetermine if contamination is present on and along the rail tracks in the vicinity of AOC 17 from the historical use of the railroad tracks in the areas of AOC 17_that were not investigated in response to the 2017 gasoline release and the 2019 diesel release. The investigation activities are designed to address data gaps from the investigation results summarized in the "Rail Car Loading Area Release Soil Sampling Investigation Report", revised December 2022 (Western 2022a). Pending NMED approval, the Refinery anticipates investigation work to be completed outside of the monsoon season. during 2023.

Soil borings will be completed with a geoprobe-direct-push drill rig (e.g., Geoprobe®) at 924 locations around on and along the railroad tracks in AOC 17. Soil borings will be completed through the track ballast when encountered. The proposed soil boring locations are shown on Figure 2. The excavation extent proposed in the "Response to Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report" (Western 2022a) is also shown on Figure 2 for reference. Because the excavation would be backfilled with clean soil (pending NMED approval), proposed soil borings for the AOC 17 investigation are not within the proposed excavation footprint. Soil borings will be completed advanced to the water table-to a total depth of 10 ft bgs, to a total depth of 35 ft, or until drilling whichever occurs first. Borings will be backfilled with bentonite and/or clean sand provided by the drilling contractor. Soil borings will be screened in the field for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID) in 2-ft intervals.

Soil samples will be collected at 2-ft intervals for PID field-screening, beginning with a surface sample (6 to 12 inches [in.] bgs or 6 to 12 in. bgs below the ballast where applicable). Analytical soil samples will be collected from the surface (6 to -12 inches [in.] bgs or 6 to 12 in. bgs below the ballast, where <u>applicable</u>); just above the groundwater table (if encountered), $\frac{1}{2}$ the bottom of the boring, $\frac{1}{2}$ and in the zone the interval with the highest PID reading. Samples will be analyzed for MTBE and BTEX-VOCs by Method 8260B/1311,; SVOCs by Methods 8270/8270SIM, TPH-DRO by Method 8015M/D, TPH-GRO by Method 8015D, and TPH-ORO by Method 8015M/D, and the RCRA -8 metals by Method 6010. The RCRA -8 metals are total arsenic, total barium, total cadmium, total chromium, total lead, total mercury, total selenium, and total silver. These analytes were selected as indicator constituents based on previous soil investigations at AOC 17 and NMED's recommendation regarding the potential for contaminants from the treatment of railroad ties in Comment #2 in the February 8, 2024, "Disapproval, Area of Concern 17 – Railroad Loading/Unloading Facility Investigation Work Plan" (NMED 2024). Soil Aanalytical results will be compared to their respective NMED Residential, Construction Worker, and Industrial, -Soil Screening Levels (SSL), and Migration to Groundwater (MTGW) Soil Screening Levels (SSLs). Analytical results for metals will also be compared to the site background values (Western 2022b). The results from this investigation will be used for future engineering and remediation evaluations.

Per NMED SSL guidance, soil leachate<u>MTGW</u> based SSLs (SL-SSL) with a dilution attenuation factor (DAF) of 20_-will be compared to the maximum reported concentration as a first step screening assessment. However, <u>T</u>the Refinery has known impacts to groundwater, including the presence of separate phase

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hydrocarbons and an associated smear zone which can act as a long-term source to groundwater. <u>Regardless</u>, at NMED's direction, an analysis of contaminant migration from the vadose zone to groundwater will be conducted to determine if an interim response is required for the purpose of protecting the groundwater. For organic contaminants, vadose zone sources of hydrocarbons are expected to deplete before smear zone sources. The expectation for shorter longevity in the vadose zone can be attributed to several factors, including greater air saturation and less contaminant mass. Diffusive transport is faster in soils with higher air saturation (ITRC 2009), suggesting that mass removal of VOCs is faster in the vadose zone. The combination of 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. As such, results from this investigation will not be compared to the DAF SL SSLs in the subsequent investigation report.



4.0 Investigation Methods

Soils collected will be visually inspected and classified in general accordance with <u>the</u> American Society for Testing and Materials D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils)<u>Standards</u>. Detailed boring logs will be compiled in the field by qualified staff. Samples will be field screened using a PID for evidence of VOCs. PID results will be recorded on the boring logs and used to identify additional sample intervals.

4.1 Sample Collection Procedures

Proposed soil sample locations are shown on Figure 2. Samples will be collected in accordance with the soil sampling procedures discussed below "Standard Operating Procedure – Soil Sampling" (Appendix A). Details related to sample collection will be documented on the boring log field forms (Appendix <u>AB</u>) and in a field logbook. General observations recorded on the field forms for each soil sample location will include sampling start and end times, weather, site conditions, sampling team members, and other personnel present. Sample-specific information will include field sample identification, time of sample collection, sample start and end depth<u>s</u>, collection method, sample type (i.e., composite or aliquot), soil classification and characteristics, deviations from or clarification of sampling procedures, and other observations. The Refinery acknowledges that composite sampling is not acceptable for site characterization and will not collect composite samples during this investigation. In addition, the sample collection methods will be reported in the investigation report.

Soil samples will be collected from the proposed locations using a direct--push drill rig (e.g., Geoprobe[®]) to "push" a soil probe rod with a disposable acetate liners into the soil. Components of the direct--push drill rig that encounter soil (e.g., the cutting shoe) will be decontaminated between sampling locations; however, the drill rig will not be decontaminated between sampling intervals at the same location due to the use of acetate liners.

All reusable sampling equipment will be decontaminated prior to installing a boring. All equipment that will come in contact with soils will be decontaminated with Liquinox[®] using a four-stage decontamination system consisting of two detergent/water washes and two deionized rinses. Equipment decontamination will be recorded in the field logbook. The Safety Data Sheet for Liquinox[®] is provided as Appendix B.

PID readings will be collected <u>from borings</u> at 2-ft intervals, beginning with a surface sample (6 to 12 in<u>ches</u> bgs<u>or 6 to 12 in</u>. below the ballast, where applicable). At each 2-ft interval, the sample will be collected from the sampling equipment and split into <u>two-2</u> aliquots. <u>The material will be placed</u> directly into a plastic bag that will be allowed to warm up for PID screening (Aliquot #1) will be placed into a plastic bag and used for PID screening. Aliquot #2 will be placed into <u>or</u> a second plastic bagplaced in clean glass jars provided by the laboratory with appropriate preservatives, if required that will be, sealed, placed in a cooler, and stored on ice (Aliquot #2). Aliquot #2 will be stored on ice until the analytical sample intervals are determined. After the sample interval has been determined, the selected aliquot will be fully labeled and shipped to the for potential laboratory analysis. Aliquot_#1 materials will not be submitted for laboratory analysis.

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Aliquot #1 will be shaken gently to expose the soil to the air trapped in the container. <u>Aliquot #1 and</u> will be allowed to rest while vapors equilibrate. Headspace vapors will be measured by inserting the probe of the PID into a small opening in Aliquot #1's plastic bag. The maximum PID value will be recorded on the field boring log for each interval. Note that if samples are cold (i.e., below 32 degrees Fahrenheit), they will be warmed in a heated building and/or vehicle before screening.

After collecting the PID reading, samples will be collected from 6 to 12 in.<u>ches</u> bgs<u>or 6 to 12 in. below</u> <u>the ballast</u>, just above the <u>ground</u>water table (if encountered), the bottom of the boring, and the interval wi<u>th</u>! the highest PID reading. Aliquot #2 <u>materials samples from the selected depths will be</u> <u>transferredwill be placed</u> into the appropriate sample container<u>s with preservative if required (i.e.,</u> <u>methylene chloride</u>), labeled, and placed in a cooler containing bagged ice. Before shipment, each cooler will be packed with ice and a laboratory-provided trip blank. A chain of custody (COC) form will accompany each sample shipment. Coolers will be sealed and delivered to an accredited laboratory.

A summary of the proposed sampling activities is provided below:

- Installation of <u>9</u>24 soil borings, <u>locations will be based on observed visual surface impacts (e.g., staining or hydrocarbon buildup), screening/logging, record visual impacts in the soil borings in the boring log field forms, and collection of soil samples from the borings. Samples will be collected from the following depths:
 </u>
 - The surface (6 to 12 in.ches bgs or 6 to 12 in. below the ballast)
 - Just above the water table (if encountered)
 - The bottom of boring
 - The zone with the highest PID reading
- 2. Collection of PID readings at the surface or below the ballast and then every 2--ft until final depth of the boring is reached (the water table, 35 ft bgs, or refusal, whichever occurs first).
- 3. Submit samples to an accredited off-site laboratory. <u>Samples will beand</u> analyzed for the following parameters:
 - MTBE and BTEX by VOCs by Method 8260B/1311
 - SVOCs by Method 8270/8270SIM
 - •___TPH-DRO by Method 8015M/D

 - •___, and TPH-ORO by Method 8015<u>M/D</u>
 - SVOCs by Method 8270/8270SIM
 - RCRA_8 metals by Method 6010
- <u>4.</u> Compare analytical soil data with applicable NMED Residential, Construction Worker, and Industrial, and MTGW SSLs.



5. Perform an analysis of contaminant migration from the vadose zone to groundwater with the screening results of the MTGW SSLs to determine if an interim response is required for the purpose of protecting the groundwater.

4.2 Data Quality and Validation

Quality assurance/quality control (QA/QC) samples will be collected during sampling to monitor the validity of the sample collection procedures. <u>A minimum of one Ff</u>ield duplicates will be collected with additional field duplicates collected at a rate of 10 percent (%) of all samples collected or at a minimum of 1 per day. Equipment will be decontaminated before collecting each sample, and equipment decontamination will be noted on the field forms. Equipment blanks will be collected from re-usable equipment at a rate of 10-% or at a minimum of 1 per day. One trip blank per cooler will accompany the samples to the laboratory. The field duplicate₂s₇ equipment blanks, and trip blanks will be submitted to the laboratory along with the soil samples. Field duplicate and equipment blanks will be analyzed for the same constituents as the soil samples; trip blanks will be analyzed for VOCs. QA/QC samples will be recorded on the field forms and the COCs. Field duplicate sample locations will be identified on the field forms. All <u>Pd</u>ata will undergo Tier II data validation.

COC and shipment procedures will include the following:

- COC forms will be completed at the end of each sampling day, prior to the shipment of samples-.
- Individual sample containers will be packed to prevent breakage and transported in a sealed cooler with ice, or other suitable coolant/industry-wide accepted substance. The drainage hole at the bottom of the cooler will be sealed, and temperature blanks will be included with each shipping container.
- Each cooler will be picked up by the analytical laboratory. Glass bottles will be separated in the shipping container by cushioning material, and plastic containers will be protected using cushioning material to prevent breakage.
- The COC and sample request form will be shipped inside the sealed cooler to be delivered to the laboratory.
- Signed and dated custody seals will be used to seal the sample shipping containers prior to transport in conformance with the United States Environmental Protection Agency protocol.
- Upon receipt of the samples at the laboratory, the custody seals will be broken, COCs signed as received, and the condition of the samples recorded.
- The original COC will remain with the laboratory and copies will be returned to the relinquishing party and be maintained on-site.

4.3 Data Evaluation and Waste Management

The <u>All</u> soil analytical results will be compared to <u>applicable</u> NMED Residential <u>and MTGW SSLs.</u>, <u>Soil</u> <u>analytical results from samples collected from 0 to 1 ft bgs will be compared to applicable</u>

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<u>NMED</u>Construction Worker, and Industrial SSLs. <u>Soil analytical results from samples collected deeper</u> than 1 ft bgs will be compared to applicable NMED Construction Worker SSLs.

Additionally, an evaluation of contaminant migration from the vadose zone to groundwater will be conducted to determine if an interim response is required for the purpose of protecting the groundwater by screening the results of the NMED MTGW SSLs comparison. The results will be presented to NMED in a subsequent investigation report, according to the schedule proposed in Section 5.

Soil <u>cuttings</u> recovered during sampling will be placed in drums, labeled, and stored on the 90-Day Pad. Waste characterization will be conducted prior to disposal. Waste characterization analysis will include testing for VOCs by Method 8260<u>B/1311</u>, <u>semi-volatile organic compounds-SVOCs</u> by Method 8270/8270SIM, <u>and</u> RCRA-<u>8</u> <u>m</u>Metals by Method 6010. <u>Before disposal, soil cuttings will also be</u> <u>analyzed for any additional constituents required by the receiving landfill and soil specific waste</u> <u>acceptance criteria will be met before disposal. Any Ww</u>astes determined to be hazardous, will be disposed <u>of accordinglywithin 90 days</u>.



5.0 <u>Conclusion and Schedule</u>

The goal of this investigation is to determine if contamination exists on and along the railroad tracks in AOC 17 by installing 9 soil borings on and along the railroad tracks. In Comment #5 of the "Response to Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report," NMED recommended installing borings in the vicinity of AOC 17 before or after monsoon season (Western 2022a). Therefore, the Refinery would like to complete the work in June of 2023 before the monsoon season, pending NMED approval of this Work Plan. Pending NMED approval, the Refinery will begin the investigation outside of the monsoon season. After-Once the investigation has been completed, the Refinery will prepare submit an investigation report summarizing the sampling results and investigation conclusions and will submit the investigation report to NMED within 1<u>5</u>80 days of the receipt of the analytical data.



6.0 References

New Mexico Environment Department (NMED). 2021. Determination of Area of Concern (AOC) Entry to the Permit, Western Refining Southwest Inc., Gallup Refinery, EPA ID #NMD000333211, HWB-WRG-MISC. August 19.

<u>New Mexico Environment Department (NMED).</u> 2022. <u>Disapproval, Rail Car Loading Area Release Soil</u> <u>Sampling Investigation Report, Western Refining Southwest LLC, Gallup Refinery. EPA ID</u> <u>#NMD000333211, HWB-WRG-026. April 25.</u>

<u>NMED. 2024. Disapproval, of Area of Concern 17 – Railroad Loading/Unloading Facility iInvestigation</u> <u>Work Plan, Western Refining Southwest Inc., Gallup Refinery, EPA ID #NM000333211,</u> <u>HWB-WRG-23-008. February 8.</u>

Western Refining Southwest LLC (Western). 2022a. Response to 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. November 30.

Western. 2022b. Background Soil Investigation Report, Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery, EPA ID #NMD000333211. December 31.

ITRC. 2009. Evaluating Natural Source Zone Depletion at Sites with LNAPL. ITRC LNAPL Team. April 2009.



Area of Concern 17 – Railroad Loading/Unloading FacilityTracks Investigation Work Plan

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Figures









Appendix A – Standard Operating Procedure – Soil Sampling Appendix <u>A</u>B – Example Boring Log

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Lithology Lo	g	I		Sheet of										
Project Name Project Number										Site II)			
Drilling Company		Ground Elevation						Total Drilled Depth						
Drilling Equipment	Borehole Diameter	Date/Time Drilling Started						Date/Time Total Depth Reached						
Type of Sampling Device						Water Level (bgs)								
						First						Final		
Sample Hammer Type Driving Wt. Drop						Geologist/Engineer						Checked by/Date		
Type Driving Wt. Drop Weather							Other Personnel Present							
Site Conditions Location Descriptio														
			Description		1				E.		(Remarks		
_ >	ints	Description			qe		ŝ	tent	Es	timate %	0 01	Kemarks		
Depth Interval Recovery	(Include lithold & notation, min	nerology, be	ze, sorting, angular dding, plasticity, c as applicable)	rity, Munsell color name lensity, consistency, etc.,	ASTM Code		Lithology	Water Content	Gr	Sa	Fi	(Include all sample types, times, and depth, odor, organic vapor measurements, etc.)		

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Lithology Log (continued)						Sheet of						
				Description			Estimate % of			6 of	Remarks	
Depth	Interval	Recovery	Blow Counts	(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	ASTM Code	Lithology	Water Content	Gr	Sa	Fi	(Include all sample types & depth, odor, organic vapor measurements, etc.)	

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<u>Appendix B – Liquinox® Safety Data Sheet</u>
Effective date: 11 May 2023

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

I Identification of the substance/mixture and of the supplier

1.1 **GHS Product identifier**

Trade Name: Liquinox® Critical Cleaning Liquid Detergent Product number: 1201, 1201-1, 1205, 1215, 1230, 1232, 1232-1, 1255

1.2 Application of the substance / the mixture: Cleaning material/Detergent

1.2.1 Recommended dilution ratio: 1 - 2% in water

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer:

Alconox Inc. 30 Glenn St White Plains, NY 10603 (914) 948-4040

Emergency telephone number:

ChemTel Inc North America: 1-888-255-3924 International: +1 813-248-0573

2 Hazards identification

2.1 Classification of the substance or mixture:

In compliance with EC regulation No. 1272, 29CFR1910/1200 and GHS requirements.

Hazard-determining components of labeling:

Alcohol ethoxylate Sodium alkylbenzene sulfonate Sodium xylenesulphonate Lauramine oxide

2.2 Label elements:

Eye damage, category 1. Skin irritation, category 2.

Product at recommended dilution:

Eye irritation, category 2B

Hazard pictograms:



Signal word: Danger

Hazard statements:

H315 Causes skin irritation. H318 Causes serious eye damage.

Precautionary statements:

P264 Wash skin thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection.

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Revision: 11 May 2023

Supplier:

Not applicable

Effective date: 11 May 2023

Revision : 11 May 2023

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

P302+P352 If on skin: Wash with soap and water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P501 Dispose of contents and container as instructed in Section 13.

Hazardous Elements at Use Dilution:

Hazard pictograms:



Signal word: Warning

Hazard statements:

H320 Causes eye irritation

Precautionary statements:

P302+P352 If on skin: Wash with soap and water. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P501 Dispose of contents and container as instructed in Section 13

Additional information: None.

Hazard description

Hazards Not Otherwise Classified (HNOC): May cause surfaces to become slippery. Use caution in areas of foot traffic if on floors.

Information concerning particular hazards for humans and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272, 29CFR1910/1200 and GHS, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients

3.1 Chemical characterization: None

3.2 Description: None

3.3 Hazardous components (percentages by weight)

Identification	Chemical Name	Classification	Wt. %
CAS number: 68081-81-2 or 68411-30-3	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Dam. 1; H318	10-25
CAS number: 1300-72-7	Sodium Xylenesulphonate	Eye Irrit. 2;H319	2.5-10
CAS number: 84133-50-6	Alcohol Ethoxylate	Skin Irrit. 2 ; H315 Eye Dam. 1; H318	2.5-10
CAS number: 1643-20-5	Lauramine oxide	Skin Irrit. 2 ; H315 Eye Dam. 1; H318	1-2

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At use dilution:										
CAS number: 68081-81-2 or 68411-30-3	Sodium Alkylbenzene Sulfonate	Eye Irr. 2B; H319	0.1-0.25							

3.4 Additional Information: None.

neasures

4.1 Description of first aid measures

General information: None.

After inhalation:

Maintain an unobstructed airway. Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water. Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly. Seek medical attention if irritation, discomfort, or vomiting persists.

4.2 Most important symptoms and effects, both acute and delayed

None

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

First aid measure at recommended dilution:

General information: None.

After inhalation:

Maintain an unobstructed airway.

Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing.

After swallowing:

Rinse mouth thoroughly. Seek medical attention if irritation, discomfort, or vomiting develops.

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5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents: None

5.2 Special hazards arising from the substance or mixture: Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters

Protective equipment:

Wear protective eye wear, gloves and clothing. Refer to Section 8.

5.4 Additional information:

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols. Avoid contact with skin, eyes and clothing.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Ensure adequate ventilation.

Ensure air handling systems are operational.

6.2 Environmental precautions:

Should not be released into the environment. Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up: Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections: None

7 Handling and storage

7.1 Precautions for safe handling:

Avoid breathing mist or vapor. Do not eat, drink, smoke or use personal products when handling chemical substances.

7.2 Conditions for safe storage, including any incompatibilities Store in a cool, well-ventilated area.

7.3 Specific end use(s):

No additional information.

8 Exposure controls/personal protection





8.1 Control parameters :

25322-68-3, Poly(ethylene oxide), AIHA TWA 10 mg/m3 (<0.15% present in concentrate)

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8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance.

Eye protection:

Safety goggles or glasses, or appropriate eye protection.

General hygienic measures:

Wash hands before breaks and at the end of work. Avoid contact with skin, eyes and clothing.

Exposure Control and Personal Protective Equipment at recommended dilution:

Under normal use and operational conditions, no special personal protective equipment or engineering controls will be necessary. Handle with care.

9 Physical and chemical properties

Appearance (physical state, color):	Pale yellow liquid	Explosion limit lower: Explosion limit upper:	Not determined or not available. Not determined or not available.	
Odor:	Not determined or not available.	Vapor pressure at 20°C:	Not determined or not available.	
Odor threshold:	Not determined or not available.	Vapor density:	Not determined or not available.	
pH-value:	8.5 (as is)	Relative density:	Not determined or not available.	
Melting/Freezing point:	Not determined or not available.	Solubilities:	Not determined or not available.	
Boiling point/Boiling range:	Not determined or not available.	Partition coefficient (n- octanol/water):	Not determined or not available.	
Flash point (closed cup):	Not determined or not available.	Auto/Self-ignition temperature:	Not determined or not available.	
Evaporation rate:	Not determined or not available.	Decomposition temperature:	Not determined or not available.	
Flammability (solid, gaseous):	Not flammable	Viscosity:	 a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available. 	
Density at 20°C:	1.08 g/mL			

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Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

I0 Stability and reactivity

- **IO.I** Reactivity: Not determined or not available.
- **10.2** Chemical stability: Not determined or not available.
- **10.3 Possibility hazardous reactions**: Not determined or not available.
- **10.4** Conditions to avoid: Not determined or not available.
- **10.5** Incompatible materials: Not determined or not available.
- 10.6 Hazardous decomposition products: Not determined or not available.

II Toxicological information

11.1 Information on toxicological effects:

Acute Toxicity:

Oral:

: LD50 >5000 mg per kg (Rat, Oral) - product.

Chronic Toxicity: No additional information.

Skin corrosion/irritation (raw materials):

Alcohol Ethoxylate: May cause mild to moderate skin irritation. Sodium Alkylbenzene Sulfonate: Causes skin irritation.

Lauramine oxide: Causes skin irritation.

Serious eye damage/irritation (raw materials):

Sodium Alkylbenzene Sulfonate: Causes serious eye damage. Alcohol Ethoxylate: Causes moderate to severe eye irritation and conjunctivitis. Sodium xylenesulphonate: irritating to eyes. Lauramine oxide: Causes serious eye damage.

Product information at recommended dilution:

Eye irritation may occur upon direct contact with eyes. No specific hazards for skin contact, inhalation, or chronic exposure are expected within normal use parameters.

Respiratory or skin sensitization: No additional information.

Carcinogenicity: No additional information.

IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

Germ cell mutagenicity: No additional information.

Reproductive toxicity: No additional information.

STOT-single and repeated exposure: No additional information.

Additional toxicological information: No additional information.

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

12 Ecological information

I2.I Toxicity:

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours. Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.9 mg/l, 48 hours. Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours. Lauramine oxide: Fish, LC50 24.3 mg/l, 96h [Killifish (Cyprinodontidae)] Lauramine oxide: Aquatic invertebrates, (LC50): 3.6 mg/l 96 hours [Daphnia (Daphnia)]. Lauramine oxide: Aquatic plants, EC50 Algae 0.31 mg/l 72 hours [Algae] Alcohol Ethoxylate: Aquatic invertebrates, (LC50): 4.01 mg/l 48 hours [Daphnia (daphnia)].

12.2 Persistence and degradability: No additional information.

12.3 Bioaccumulative potential: No additional information.

12.4 Mobility in soil: No additional information.

General notes: No additional information.

I 2.5 Results of PBT and vPvB assessment:

PBT: No additional information.

vPvB: No additional information.

12.6 Other adverse effects: No additional information.

13 Disposal considerations

13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)

Relevant Information:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

l4 Tr	ansport information		
14.1	UN Number: ADR, ADN, DOT, IMDG, IATA	None	
14.2	UN Proper shipping name: ADR, ADN, DOT, IMDG, IATA	None	
14.3	Transport hazard classes: ADR, ADN, DOT, IMDG, IATA	Class: None Label: None LTD.QTY: None	
	US DOT Limited Quantity Exception:	None	

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e Name: Liquinox [®] Critical Cleaning Liquid	5
	Non Bulk:
	RQ (if applicable): None
• • •	Proper shipping Name:
None Hazard Class: None	None Hazard Class: None
Packing Group: None	Packing Group: None
Marine Pollutant (if applicable): No	Marine Pollutant (if applicable): No
additional information.	additional information.
Comments: None	Comments: None
Packing group:	None
ADR, ADN, DOT, IMDG, IATA	
Environmental hazards:	None
Special precautions for user:	None
Danger code (Kemler):	None
EMS number:	None
Segregation groups:	None
Transport in bulk according to Annex II o	f MARPOL73/78 and the IBC Code: Not applicable.
Transport/Additional information:	
Transport category:	None
Tunnel restriction code:	None
	Marine Pollutant (if applicable): No additional information. Comments: NonePacking group: ADR, ADN, DOT, IMDG, IATAEnvironmental hazards: Special precautions for user: Danger code (Kemler): EMS number: Segregation groups:Transport in bulk according to Annex II of Transport category:

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

North American

-		
S	ARA	

Section 313 (specific toxic chemical listings): None of the ingredients are listed. Section 302 (extremely hazardous substances): None of the ingredients are listed.

CERCLA (Comprehensive Environmental Response, Clean up and Liability Act)

Reportable Spill Quantity: None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

Inventory: All ingredients are listed as active. **Rules and Orders**: Not applicable.

Proposition 65 (California):

Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed. Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Canadian

Canadian Domestic Substances List (DSL):

All ingredients are listed.

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Asia Pacific Australia

Australian Inventory of Chemical Substances (AICS): All ingredients are listed.

China

Inventory of Existing Chemical Substances in China (IECSC): All ingredients are listed.

Japan

Inventory of Existing and New Chemical Substances (ENCS): All ingredients are listed.

Korea

Existing Chemicals List (ECL): All ingredients are listed.

New Zealand

New Zealand Inventory of Chemicals (NZOIC): All ingredients are listed.

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS): All ingredients are listed.

Taiwan

Taiwan Chemical Substance Inventory (TSCI): All ingredients are listed.

EU

REACH Article 57 (SVHC): None of the ingredients are listed.

Germany MAK: Not classified.

16 Other information

Abbreviations and Acronyms: None

Summary of Phrases

Hazard statements:

H315 Causes skin irritation.

H318 Causes serious eye damage.

Precautionary statements:

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 If on skin: Wash with soap and water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P501 Dispose of contents and container as instructed in Section

13.

Manufacturer Statement:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

	At recommended dilution
NFPA: 1-0-0 HMIS: 1-0-0	NFPA: 1-0-0 HMIS: 1-0-0

ATTACHMENT C

REVISED REPORT

Revised Area of Concern 17 – Railroad Tracks

Investigation Work Plan



Western Refining Southwest LLC

(D/B/A Marathon Gallup Refinery)

Gallup, New Mexico

EPA ID# NMD000333211

June 5, 2024



Executive Summary

Western Refining Southwest LLC D/B/A Marathon Gallup Refinery (Refinery) is submitting this Work Plan for a soil investigation on and along the railroad tracks in Area of Concern (AOC) 17. The New Mexico Environment Department (NMED) requested further investigation on and along the railroad tracks in AOC 17 in Comment #10C of the "Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report" (NMED 2022).

This Work Plan proposes to investigate potential contamination on and along the railroad tracks within AOC 17. This Work Plan includes installation of 9 soil borings and collection of a maximum of 36 soil samples. Soil borings will be installed in areas that exhibit visual impacts such as soil staining or hydrocarbon buildup. Soil samples will be collected using a direct-push drill rig (e.g., Geoprobe[®]) and will target any areas with observed surface staining, as applicable. Samples will be analyzed for volatile organic compounds, semi-volatile organic compounds, total petroleum hydrocarbons (TPH) – diesel range organics, TPH – gasoline range organics, TPH – oil range organics, and the Resource Conservation and Recovery Act 8 metals. The Refinery will prepare an investigation report to NMED within 150 days of the receipt of the analytical data.



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- 2. Proposed Soil Boring Locations, AOC 17 Railroad Tracks, Investigation Work Plan, Western Refining Southwest LLC, D/B/A Marathon Gallup Refinery, Gallup, New Mexico

List of Appendices

- A. EXAMPLE BORING LOG
- B. LIQUINOX[®] SAFETY DATA SHEET



List of Acronyms and Abbreviations

%	percent
amsl	above mean sea level
AOC	Area of Concern
bgs	below ground surface
COC	chain of custody
DAF	dilution attenuation factor
DRO	diesel range organics
ft	foot or feet
GRO	gasoline range organics
I-40	Interstate 40
in.	inches
MTGW	Migration to Groundwater
NM	New Mexico
NMED	New Mexico Environment Department
ORO	oil range organics
PID	photoionization detector
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
SSL	soil screening level
SVOC	semi-volatile organic compounds
ТРН	total petroleum hydrocarbons
VOC	volatile organic compounds

.



1.0 Introduction

The Western Refining Southwest LLC D/B/A Marathon Gallup Refinery (Refinery) is located approximately 18.5 miles east of Gallup, New Mexico (NM), along the north side of Interstate Highway 40 (I-40). The physical address is I-40, Exit #39, Jamestown, NM, 87347. The Refinery property covers approximately 810 acres.

This Work Plan is for the investigation of soils on and along the railroad tracks in Area of Concern (AOC) 17 (Figure 1). The New Mexico Environment Department (NMED) requested further investigation on and along the railroad tracks in AOC 17 in Comment #10C of the "Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report" (NMED 2022). This Work Plan proposes a sampling plan that will investigate the area on and along the railroad tracks within AOC 17 to evaluate and characterize soil conditions and determine if contamination related to the historic use of the railroad tracks is present.

The sampling plan includes installation of 9 soil borings and collection of up to 36 soil samples. Soil borings will be installed in areas that exhibit visual impacts such as soil staining or hydrocarbon buildup. Soil samples will be collected using a direct-push drill rig (e.g., Geoprobe®). Samples will be analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH) – diesel range organics (DRO), TPH – gasoline range organics (GRO), TPH – oil range organics (ORO), and the Resource Conservation and Recovery Act (RCRA) 8 metals. The same constituent list will be used as during the 2021 investigation following NMED's recommendation. The results from this investigation will be used for future engineering and remediation evaluations.



2.0 Site Conditions

The Refinery has been indefinitely idled since October 9, 2020. Historically, the Refinery processed crude oil transported to the facility by pipeline or tanker truck. During active operation, various process units were operated at the Refinery, including alkylation, blending gas, crude distillation, diesel hydro-treating, fluid catalytic cracker, gas conditioning, isomerization, naphtha hydro-treating, reformer, saturated gas, sulfur recovery, ammonium thiosulfate, and merox treater units.

Historically, Refinery operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel. There are two sets of railroad tracks located within AOC 17 which run parallel to each other approximately 15 feet (ft) apart that are currently not in use.

2.1 Surface Conditions

Local site topographic features include higher ground in the southeast gradually sloping to a lowland fluvial plain to the northwest. Elevations on the Refinery property range from 7,040 ft above mean sea level (amsl) to 6,860 ft amsl. The railroad tracks within AOC 17 slope gently to the north over approximately 850 ft. The elevation of the south end of the tracks is approximately 6,945 ft amsl while the elevation of the north end of the tracks is approximately 6,939 ft amsl. Directly under the railroad tracks lies the track ballast and a concrete secondary containment system which runs beneath the tracks of the rail loading rack.

2.2 Subsurface Conditions

The shallow subsurface soil (alluvium) is comprised of clay and silt with some inter-bedded sand layers. Beneath the alluvium is the Petrified Forest Member of the Chinle Group, which primarily consists of interbedded mudstone, siltstone, and sandstone. The Alluvium/Chinle interface is as little as 15 ft below ground surface (bgs) to over 32 ft bgs. Depth to groundwater in nearby wells OW-58A and RW-1 has historically ranged from 23 to 32 ft bgs and 26 to 33 ft bgs, respectively.



3.0 Scope of Activities

The investigative activities proposed in this Work Plan are to determine if contamination is present on and along the rail tracks in the vicinity of AOC 17 from the historical use of the railroad tracks in AOC 17. Pending NMED approval, the Refinery anticipates investigation work to be completed outside of the monsoon season.

Soil borings will be completed with a direct-push drill rig (e.g., Geoprobe[®]) at 9 locations on and along the railroad tracks in AOC 17. Soil borings will be completed through the track ballast when encountered. The proposed soil boring locations are shown on Figure 2. Soil borings will be advanced to the water table, to a total depth of 35 ft, or until refusal, whichever occurs first. Borings will be backfilled with bentonite and/or clean sand provided by the drilling contractor. Soil borings will be screened in the field for the presence of VOCs using a photoionization detector (PID) in 2-ft intervals.

Analytical soil samples will be collected from the surface (6 to 12 inches [in.] bgs or 6 to 12 in. below the ballast, where applicable); just above the groundwater table (if encountered), the bottom of the boring, and the interval with the highest PID reading. Samples will be analyzed for VOCs by Method 8260B/1311, SVOCs by Method 8270/8270SIM, TPH-DRO by Method 8015M/D, TPH-GRO by Method 8015D, TPH-ORO by Method 8015M/D, and the RCRA 8 metals by Method 6010. The RCRA 8 metals are total arsenic, total barium, total cadmium, total chromium, total lead, total mercury, total selenium, and total silver. These analytes were selected based on previous soil investigations at AOC 17 and NMED's recommendation regarding potential contaminants from the treatment of railroad ties in Comment #2 in the February 8, 2024, "Disapproval, Area of Concern 17 – Railroad Loading/Unloading Facility Investigation Work Plan" (NMED 2024). Soil analytical results will be compared to their respective NMED Residential, Construction Worker, Industrial, and Migration to Groundwater (MTGW) Soil Screening Levels (SSLs). The results from this investigation will be used for future engineering and remediation evaluations.

Per NMED SSL guidance, MTGW SSLs with a dilution attenuation factor of 20 will be compared to the maximum reported concentration as a first step screening assessment. The Refinery has known impacts to groundwater, including the presence of separate phase hydrocarbons and an associated smear zone which can act as a long-term source to groundwater. Regardless, at NMED's direction, an analysis of contaminant migration from the vadose zone to groundwater will be conducted to determine if an interim response is required for the purpose of protecting the groundwater.



4.0 Investigation Methods

Soils collected will be visually inspected and classified in general accordance with the American Society for Testing and Materials D2487 (Unified Soil Classification System) and D2488 (Description and Identification of Soils) Standards. Detailed boring logs will be compiled in the field by qualified staff. Samples will be field screened using a PID for evidence of VOCs. PID results will be recorded on the boring logs and used to identify additional sample intervals.

4.1 Sample Collection Procedures

Proposed soil sample locations are shown on Figure 2. Samples will be collected in accordance with the soil sampling procedures discussed below. Details related to sample collection will be documented on the boring log field forms (Appendix A) and in a field logbook. General observations recorded on the field forms for each soil sample location will include sampling start and end times, weather, site conditions, sampling team members, and other personnel present. Sample-specific information will include field sample identification, time of sample collection, sample start and end depths, collection method, sample type (i.e., aliquot), soil classification and characteristics, deviations from or clarification of sampling procedures, and other observations. The Refinery acknowledges that composite sampling is not acceptable for site characterization and will not collect composite samples during this investigation. In addition, the sample collection methods will be reported in the investigation report.

Soil samples will be collected from the proposed locations using a direct-push drill rig (e.g., Geoprobe[®]) to "push" a soil probe rod with a disposable acetate liner into the soil. Components of the direct-push drill rig that encounter soil (e.g., the cutting shoe) will be decontaminated between sampling locations; however, the drill rig will not be decontaminated between sampling intervals at the same location due to the use of acetate liners.

All reusable sampling equipment will be decontaminated prior to installing a boring. All equipment that will come in contact with soils will be decontaminated with Liquinox[®] using a four-stage decontamination system consisting of two detergent/water washes and two deionized rinses. Equipment decontamination will be recorded in the field logbook. The Safety Data Sheet for Liquinox[®] is provided as Appendix B.

PID readings will be collected from borings at 2-ft intervals, beginning with a surface sample (6 to 12 in. bgs or 6 to 12 in. below the ballast, where applicable). At each 2-ft interval, the sample will be collected from the sampling equipment and split into 2 aliquots. The material will be placed directly into a plastic bag that will be allowed to warm up for PID screening (Aliquot #1) or placed in clean glass jars provided by the laboratory with appropriate preservatives, if required (Aliquot #2). Aliquot #2 will be stored on ice until the analytical sample intervals are determined. After the sample interval has been determined, the selected aliquot will be fully labeled and shipped to the laboratory. Aliquot #1 materials will not be submitted for laboratory analysis.

Aliquot #1 will be shaken gently to expose the soil to the air trapped in the container. Aliquot #1 will be allowed to rest while vapors equilibrate. Headspace vapors will be measured by inserting the probe of



the PID into a small opening in Aliquot #1's plastic bag. The maximum PID value will be recorded on the field boring log for each interval. Note that if samples are cold (i.e., below 32 degrees Fahrenheit), they will be warmed in a heated building and/or vehicle before screening.

After collecting the PID reading, samples will be collected from 6 to 12 in. bgs or 6 to 12 in. below the ballast, just above the groundwater table (if encountered), the bottom of the boring, and the interval with the highest PID reading. Aliquot #2 samples will be placed into the appropriate sample containers with preservative if required (i.e., methylene chloride), labeled, and placed in a cooler containing bagged ice. Before shipment, each cooler will be packed with ice and a laboratory-provided trip blank. A chain of custody (COC) form will accompany each sample shipment. Coolers will be sealed and delivered to an accredited laboratory.

A summary of the proposed sampling activities is provided below:

- 1. Install 9 soil borings, locations will be based on observed visual surface impacts (e.g., staining or hydrocarbon buildup), record visual impacts in the soil borings in the boring log field forms, and collect soil samples from the borings from the following depths:
 - The surface (6 to 12 in. bgs or 6 to 12 in. below the ballast)
 - Just above the water table (if encountered)
 - The bottom of boring
 - The zone with the highest PID reading
- 2. Collection of PID readings at the surface or below the ballast and then every 2-ft until final depth of the boring is reached (the water table, 35 ft bgs, or refusal, whichever occurs first).
- 3. Submit samples to an off-site laboratory and analyze for the following parameters:
 - VOCs by Method 8260B/1311
 - SVOCs by Method 8270/8270SIM
 - TPH-DRO by Method 8015M/D
 - TPH-GRO by Method 8015D
 - TPH-ORO by Method 8015M/D
 - RCRA 8 metals by Method 6010
- 4. Compare analytical soil data with applicable NMED Residential, Construction Worker, Industrial, and MTGW SSLs.
- 5. Perform an analysis of contaminant migration from the vadose zone to groundwater with the screening results of the MTGW SSLs to determine if an interim response is required for the purpose of protecting the groundwater.



4.2 Data Quality and Validation

Quality assurance/quality control (QA/QC) samples will be collected during sampling to monitor the validity of the sample collection procedures. A minimum of one field duplicate will be collected with additional field duplicates collected at a rate of 10 percent (%) of all samples collected. Equipment will be decontaminated before collecting each sample, and equipment decontamination will be noted on the field forms. Equipment blanks will be collected from re-usable equipment at a rate of 10% or at a minimum of 1 per day. One trip blank per cooler will accompany the samples to the laboratory. The field duplicate, equipment blanks, and trip blanks will be submitted to the laboratory along with the soil samples. Field duplicate and equipment blanks will be analyzed for the same constituents as the soil samples; trip blanks will be analyzed for VOCs. QA/QC samples will be recorded on the field forms and the COCs. Field duplicate sample locations will be identified on the field forms. All data will undergo Tier II data validation.

COC and shipment procedures will include the following:

- COC forms will be completed at the end of each sampling day, prior to the shipment of samples.
- Individual sample containers will be packed to prevent breakage and transported in a sealed cooler with ice, or other suitable coolant/industry-wide accepted substance. The drainage hole at the bottom of the cooler will be sealed, and temperature blanks will be included with each shipping container.
- Each cooler will be picked up by the analytical laboratory. Glass bottles will be separated in the shipping container by cushioning material, and plastic containers will be protected using cushioning material to prevent breakage.
- The COC and sample request form will be shipped inside the sealed cooler to be delivered to the laboratory.
- Signed and dated custody seals will be used to seal the sample shipping containers prior to transport in conformance with the United States Environmental Protection Agency protocol.
- Upon receipt of the samples at the laboratory, the custody seals will be broken, COCs signed as received, and the condition of the samples recorded.
- The original COC will remain with the laboratory and copies will be returned to the relinquishing party and be maintained on-site.

4.3 Data Evaluation and Waste Management

All soil analytical results will be compared to NMED Residential and MTGW SSLs. Soil analytical results from samples collected from 0 to 1 ft bgs will be compared to applicable NMED Industrial SSLs. Soil analytical results from samples collected deeper than 1 ft bgs will be compared to applicable NMED Construction Worker SSLs.



Additionally, an evaluation of contaminant migration from the vadose zone to groundwater will be conducted to determine if an interim response is required for the purpose of protecting the groundwater by screening the results of the NMED MTGW SSLs comparison. The results will be presented to NMED in a subsequent investigation report, according to the schedule proposed in Section 5.

Soil cuttings recovered during sampling will be placed in drums, labeled, and stored on the 90-Day Pad. Waste characterization will be conducted prior to disposal. Waste characterization analysis will include testing for VOCs by Method 8260B/1311, SVOCs by Method 8270/8270SIM, RCRA 8 metals by Method 6010. Before disposal, soil cuttings will also be analyzed for any additional constituents required by the receiving landfill and soil specific waste acceptance criteria will be met before disposal. Any waste determined to be hazardous, will be disposed of accordingly.



5.0 Conclusion and Schedule

The goal of this investigation is to determine if contamination exists on and along the railroad tracks in AOC 17 by installing 9 soil borings on and along the railroad tracks. Pending NMED approval, the Refinery will begin the investigation outside of the monsoon season. Once the investigation has been completed, the Refinery will submit an investigation report summarizing the sampling results and investigation conclusions within 150 days of the receipt of the analytical data.



6.0 References

- New Mexico Environment Department (NMED). 2022. Disapproval, Rail Car Loading Area Release Soil Sampling Investigation Report, Western Refining Southwest LLC, Gallup Refinery. EPA ID #NMD000333211, HWB-WRG-026. April 25.
- NMED. 2024. Disapproval, of Area of Concern 17 Railroad Loading/Unloading Facility Investigation
 Work Plan, Western Refining Southwest Inc., Gallup Refinery, EPA ID #NM000333211,
 HWB-WRG-23-008. February 8.



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Figures









Appendix A – Example Boring Log

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Tri	hų	dre													LOCID
	Lithology Log							Sheet of						LOCID	
Project	ect Name Project Number Site ID)								
Drilling	Drilling Company Driller							Ground Elevation						Total Drilled Depth	
Drilling	Drilling Equipment Drilling Method Borehole Diameter Date/Time Drilling Started									Date/Time Total Depth Reached					
Type of	/pe of Sampling Device Water Level (bgs)														
~ .	First								Final						
Sample Type	le Hammer Geologist/Engineer Driving Wt. Drop							Checked by/Date							
Weathe							r		Other P	ersonne	l Presei	nt			
	nditions n Descri	ption (ir	nclude sketc	h in fie	eld logbook	x)			ļ						
		1	1			Description		<u> </u>				Es	timate %	6 of	Remarks
_	al	unts						ode		gy	ntent				
Depth	Interval	Recovery Blow Counts	(Include & notatio	litholog n, mine	gy, grain siz erology, be	ze, sorting, angul dding, plasticity, as applicable)	arity, Munsell color name density, consistency, etc.,	ASTM Code		Lithology	Water Content	Gr	Sa	Fi	(Include all sample types, times, and depth, odor, organic vapor measurements, etc.)
	- - -														
	F														
ΙE	E														
	- ⊢														
	- F														
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	- -														
	F														
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				LOCID				LOCID				
Lithology Log (continued)				Sheet of								
				Description					Estimate % of		Remarks	
Depth	Interval	Recovery	Blow Counts	(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	ASTM Code	Lithology	Water Content	Gr	Sa	Fi	(Include all sample types & depth, odor, organic vapor measurements, etc.)	

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Appendix B – Liquinox® Safety Data Sheet

Effective date: 11 May 2023

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

I Identification of the substance/mixture and of the supplier

1.1 **GHS Product identifier**

Trade Name: Liquinox® Critical Cleaning Liquid Detergent Product number: 1201, 1201-1, 1205, 1215, 1230, 1232, 1232-1, 1255

1.2 Application of the substance / the mixture: Cleaning material/Detergent

1.2.1 Recommended dilution ratio: 1 - 2% in water

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer:

Alconox Inc. 30 Glenn St White Plains, NY 10603 (914) 948-4040

Emergency telephone number:

ChemTel Inc North America: 1-888-255-3924 International: +1 813-248-0573

2 Hazards identification

2.1 Classification of the substance or mixture:

In compliance with EC regulation No. 1272, 29CFR1910/1200 and GHS requirements.

Hazard-determining components of labeling:

Alcohol ethoxylate Sodium alkylbenzene sulfonate Sodium xylenesulphonate Lauramine oxide

2.2 Label elements:

Eye damage, category 1. Skin irritation, category 2.

Product at recommended dilution:

Eye irritation, category 2B

Hazard pictograms:



Signal word: Danger

Hazard statements:

H315 Causes skin irritation. H318 Causes serious eye damage.

Precautionary statements:

P264 Wash skin thoroughly after handling. P280 Wear protective gloves/protective clothing/eye protection/face protection.

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Supplier:

Not applicable

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Effective date: 11 May 2023

Revision : 11 May 2023

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

P302+P352 If on skin: Wash with soap and water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P501 Dispose of contents and container as instructed in Section 13.

Hazardous Elements at Use Dilution:

Hazard pictograms:



Signal word: Warning

Hazard statements:

H320 Causes eye irritation

Precautionary statements:

P302+P352 If on skin: Wash with soap and water. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P501 Dispose of contents and container as instructed in Section 13

Additional information: None.

Hazard description

Hazards Not Otherwise Classified (HNOC): May cause surfaces to become slippery. Use caution in areas of foot traffic if on floors.

Information concerning particular hazards for humans and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272, 29CFR1910/1200 and GHS, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients

3.1 Chemical characterization: None

3.2 Description: None

3.3 Hazardous components (percentages by weight)

Identification	Chemical Name	Classification	Wt. %
CAS number: 68081-81-2 or 68411-30-3	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Dam. 1; H318	10-25
CAS number: 1300-72-7	Sodium Xylenesulphonate	Eye Irrit. 2;H319	2.5-10
CAS number: 84133-50-6	Alcohol Ethoxylate	Skin Irrit. 2 ; H315 Eye Dam. 1; H318	2.5-10
CAS number: 1643-20-5	Lauramine oxide	Skin Irrit. 2 ; H315 Eye Dam. 1; H318	1-2

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Effective date: 11 May 2023

Revision : 11 May 2023

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

At use dilution:							
CAS number: 68081-81-2 or 68411-30-3	Sodium Alkylbenzene Sulfonate	Eye Irr. 2B; H319	0.1-0.25				

3.4 Additional Information: None.

4 First aid measure	
---------------------	--

4.1 Description of first aid measures

General information: None.

After inhalation:

Maintain an unobstructed airway. Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water. Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly. Seek medical attention if irritation, discomfort, or vomiting persists.

4.2 Most important symptoms and effects, both acute and delayed

None

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

First aid measure at recommended dilution:

General information: None.

After inhalation:

Maintain an unobstructed airway.

Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing.

After swallowing:

Rinse mouth thoroughly. Seek medical attention if irritation, discomfort, or vomiting develops.

Effective date: 11 May 2023

Revision : 11 May 2023

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents: None

5.2 Special hazards arising from the substance or mixture: Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters

Protective equipment:

Wear protective eye wear, gloves and clothing. Refer to Section 8.

5.4 Additional information:

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols. Avoid contact with skin, eyes and clothing.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures Ensure adequate ventilation.

Ensure air handling systems are operational.

6.2 Environmental precautions:

Should not be released into the environment. Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up: Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections: None

7 Handling and storage

7.1 Precautions for safe handling:

Avoid breathing mist or vapor. Do not eat, drink, smoke or use personal products when handling chemical substances.

7.2 Conditions for safe storage, including any incompatibilities Store in a cool, well-ventilated area.

7.3 Specific end use(s):

No additional information.

8 Exposure controls/personal protection





8.1 Control parameters :

25322-68-3, Poly(ethylene oxide), AIHA TWA 10 mg/m3 (<0.15% present in concentrate)

Revision : 11 May 2023

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance.

Eye protection:

Safety goggles or glasses, or appropriate eye protection.

General hygienic measures:

Wash hands before breaks and at the end of work. Avoid contact with skin, eyes and clothing.

Exposure Control and Personal Protective Equipment at recommended dilution:

Under normal use and operational conditions, no special personal protective equipment or engineering controls will be necessary. Handle with care.

9 Physical and chemical properties

Appearance (physical state, color):	Pale yellow liquid	Explosion limit lower: Explosion limit upper:	Not determined or not available. Not determined or not available.	
Odor:	Not determined or not available.	Vapor pressure at 20°C:	Not determined or not available.	
Odor threshold:	Not determined or not available.	Vapor density:	Not determined or not available.	
pH-value:	8.5 (as is)	Relative density:	Not determined or not available.	
Melting/Freezing point:	Not determined or not available.	Solubilities:	Not determined or not available.	
Boiling point/Boiling range:	Not determined or not available.	Partition coefficient (n- octanol/water):	Not determined or not available.	
Flash point (closed cup):	Not determined or not available.	Auto/Self-ignition temperature:	Not determined or not available.	
Evaporation rate:	Not determined or not available.	Decomposition temperature:	Not determined or not available.	
Flammability (solid, gaseous):	Not flammable	Viscosity:	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.	
Density at 20°C:	1.08 g/mL			

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Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

10 Stability and reactivity

- **IO.I** Reactivity: Not determined or not available.
- **10.2** Chemical stability: Not determined or not available.
- **10.3 Possibility hazardous reactions**: Not determined or not available.
- **10.4** Conditions to avoid: Not determined or not available.
- **10.5** Incompatible materials: Not determined or not available.
- 10.6 Hazardous decomposition products: Not determined or not available.

II Toxicological information

11.1 Information on toxicological effects:

Acute Toxicity:

Oral:

: LD50 >5000 mg per kg (Rat, Oral) - product.

Chronic Toxicity: No additional information.

Skin corrosion/irritation (raw materials):

Alcohol Ethoxylate: May cause mild to moderate skin irritation. Sodium Alkylbenzene Sulfonate: Causes skin irritation.

Lauramine oxide: Causes skin irritation.

Serious eye damage/irritation (raw materials):

Sodium Alkylbenzene Sulfonate: Causes serious eye damage. Alcohol Ethoxylate: Causes moderate to severe eye irritation and conjunctivitis. Sodium xylenesulphonate: irritating to eyes. Lauramine oxide: Causes serious eye damage.

Product information at recommended dilution:

Eye irritation may occur upon direct contact with eyes. No specific hazards for skin contact, inhalation, or chronic exposure are expected within normal use parameters.

Respiratory or skin sensitization: No additional information.

Carcinogenicity: No additional information.

IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

Germ cell mutagenicity: No additional information.

Reproductive toxicity: No additional information.

STOT-single and repeated exposure: No additional information.

Additional toxicological information: No additional information.

Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

12 Ecological information

12.1 Toxicity:

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours. Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.9 mg/l, 48 hours. Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours. Lauramine oxide: Fish, LC50 24.3 mg/l, 96h [Killifish (Cyprinodontidae)] Lauramine oxide: Aquatic invertebrates, (LC50): 3.6 mg/l 96 hours [Daphnia (Daphnia)]. Lauramine oxide: Aquatic plants, EC50 Algae 0.31 mg/l 72 hours [Algae] Alcohol Ethoxylate: Aquatic invertebrates, (LC50): 4.01 mg/l 48 hours [Daphnia (daphnia)].

12.2 Persistence and degradability: No additional information.

12.3 Bioaccumulative potential: No additional information.

12.4 Mobility in soil: No additional information.

General notes: No additional information.

12.5 Results of PBT and vPvB assessment:

PBT: No additional information.

vPvB: No additional information.

12.6 Other adverse effects: No additional information.

13 Disposal considerations

13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)

Relevant Information:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

l4 Tr	4 Transport information			
14.1	UN Number: ADR, ADN, DOT, IMDG, IATA	None		
14.2	UN Proper shipping name: ADR, ADN, DOT, IMDG, IATA	None		
14.3	Transport hazard classes: ADR, ADN, DOT, IMDG, IATA	Class: Non Label: Non LTD.QTY: Non	e	
	US DOT Limited Quantity Exception:	None		

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Traue	e Name: Liquinox [®] Critical Cleaning Liquid	-
	Bulk:	Non Bulk:
	RQ (if applicable): None	RQ (if applicable): None
	Proper shipping Name:	Proper shipping Name:
	None Hazard Class: None	None Hazard Class: None
	Packing Group: None	Packing Group: None
	Marine Pollutant (if applicable): No	Marine Pollutant (if applicable): No
	additional information.	additional information.
	Comments: None	Comments: None
14.4	Packing group: ADR, ADN, DOT, IMDG, IATA	None
14.5	Environmental hazards:	None
14.6	Special precautions for user:	None
	Danger code (Kemler):	None
	EMS number:	None
	Segregation groups:	None
14.7	Transport in bulk according to Annex II o	of MARPOL73/78 and the IBC Code: Not applicable.
14.8	Transport/Additional information:	
	Transport category:	None
	Tunnel restriction code:	None
	UN "Model Regulation":	None
15 Reg	gulatory information	

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

North American

SARA

Section 313 (specific toxic chemical listings): None of the ingredients are listed. Section 302 (extremely hazardous substances): None of the ingredients arelisted.

CERCLA (Comprehensive Environmental Response, Clean up and Liability Act)

Reportable Spill Quantity: None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

Inventory: All ingredients are listed as active. Rules and Orders: Not applicable.

Proposition 65 (California):

Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed. Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Canadian

Canadian Domestic Substances List (DSL):

All ingredients are listed.

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Trade Name: Liquinox[®] Critical Cleaning Liquid Detergent

Asia Pacific

Australia

Australian Inventory of Chemical Substances (AICS): All ingredients are listed.

China

Inventory of Existing Chemical Substances in China (IECSC): All ingredients are listed.

Japan

Inventory of Existing and New Chemical Substances (ENCS): All ingredients are listed.

Korea

Existing Chemicals List (ECL): All ingredients are listed.

New Zealand

New Zealand Inventory of Chemicals (NZOIC): All ingredients are listed.

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS): All ingredients are listed.

Taiwan

Taiwan Chemical Substance Inventory (TSCI): All ingredients are listed.

EU

REACH Article 57 (SVHC): None of the ingredients are listed.

Germany MAK: Not classified.

16 Other information

Abbreviations and Acronyms: None

Summary of Phrases

Hazard statements:

H315 Causes skin irritation.

H318 Causes serious eye damage.

Precautionary statements:

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 If on skin: Wash with soap and water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P501 Dispose of contents and container as instructed in Section

13.

Manufacturer Statement:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

	At recommended dilution:
NFPA: 1-0-0	NFPA: 1-0-0
HMIS: 1-0-0	HMIS: 1-0-0

District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III 1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3470 Fax: (505) 476-3462

State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS				
Operator: Western Refining Southwest LLC	OGRID: 267595			
539 South Main Street Findlay, OH 45840	Action Number: 351010			
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)			

CONDITIONS				
Created By		Condition Date		
joel.stone	Approved for OCD record retention purposes.	7/25/2024		

CONDITIONS

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Action 351010