GW - 028

C-141s
(5)

Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Friday, September 20, 2019 2:41 PM
To: Chavez, Carl J, EMNRD
Cc: Denton, Scott; Leik, Jason; Sahba, Arsin M.; Bratcher, Mike, EMNRD; Billings, Bradford, EMNRD; Holder, Mike; Speer, Julie (JSpeer@trccompanies.com)
Subject: [EXT] RE: C-141 for Tank 106 Release
Attachments: 2019-09-20 Closure Report T-106 Release March 2019.pdf; 2019-09-20 C-141 T-106 release.pdf

Carl,

Please find the attached report and C-141 forms. The entire hardcopy report will be delivered on Monday (9/23).

If you have any questions, please let us know.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, June 14, 2019 9:47 AM
To: Combs, Robert
Cc: Denton, Scott; Dade, Lewis (Randy); Leik, Jason; Sahba, Arsin M.; Bratcher, Mike, EMNRD; Griswold, Jim, EMNRD
Subject: RE: C-141 for Tank 106 Release

CAUTION: This email originated from outside of the HollyFrontier organization. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Robert:

Ok. The confirmation sampling should verify the clean-up.

Thank you.

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Friday, June 14, 2019 9:45 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Denton, Scott <Scott.Denton@HollyFrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>; Leik, Jason <Jason.Leik@HollyFrontier.com>; Sahba, Arsin M. <Arsin.Sahba@HollyFrontier.com>; Bratcher, Mike, EMNRD

September 20, 2019

Mr. Carl Chavez
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: March 2019 Tank 106 Release, Site Characterization, Assessment, and Closure Report, HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico, GW-028

HollyFrontier Navajo Refining LLC (HFNR) is submitting this letter to document site characterization and assessment results of the Tank 106 release that was discovered on March 26, 2019, at the Artesia Refinery (refinery) located in Artesia, New Mexico. This letter also serves as the closure report for this release. Between 40 to 50 barrels of sour water overflowed from Tank 106 due to a local gauge and transmitter malfunction. The release was entirely contained within the Tank 106 secondary containment which consists of earthen berms. The release location and extent of the release area is shown on Figure 1. The initial Form C-141 (Release Notification) for this release was submitted to the New Mexico Oil Conservation Division (OCD) on March 27, 2019. The final Form C-141 is provided as Attachment A.

INITIAL RELEASE RESPONSE ACTIVTIES

HFNR completed the following activities after discovery of the release:

- Reduced tank level to prevent further release.
- Free liquids were recovered and placed into the refinery wastewater treatment system, upstream of the oil/water separator. Over 40 barrels of released fluids were recovered.
- Impacted soil (based on indications of moisture, staining, and odor) was removed and placed into roll off bins. Approximately 85 cubic yards of soil was removed and transported to Gandy Marley, Inc. Contaminated Soils Landfarm in Roswell, New Mexico for disposal. Soil waste disposal documentation is provided as Attachment B.
- Microbes (Terminator-HSD) and a surface washing agent (Gold Crew SW) were applied to the open excavation to address residual hydrocarbons in soil. Safety data sheets (SDSs) for each material applied are provided as Attachment C. The excavation was left open pending assessment conducted in June 2019 as described below.

SITE CHARACTERIZATION

The release occurred within an active operating refinery that is continuously secured to prevent access from unauthorized personnel and the general public. The release occurred within the Southeast Tank Farm Area which is listed as Area of Concern (AOC) 3 in the refinery's Post-Closure Care Permit (PCC Permit) issued by the New Mexico Environment Department (NMED) in December 2010. AOC 3 is subject to corrective action per the requirements of the refinery's Resource Conservation and Recovery Act (RCRA) permit and is also covered by the refinery's facility-wide groundwater monitoring and recovery system. As stated above, the release area is entirely contained within the Tank 106 secondary containment which consists of earthen berms. Site characterization information for the release is provided below in accordance with 19.15.29.11 NMAC.

- Depth to Groundwater: Monitoring well MW-64 is located approximately 180 feet to the southwest (down/cross-gradient) of the release area and is gauged and sampled on a semi-annual basis as part of the facility-wide groundwater monitoring program. The depth to groundwater measured at MW-64 in April 2018 and October 2018 was 15.75 feet below ground surface (bgs) and 15.65 feet bgs, respectively. Groundwater gauging records were provided to the OCD in the *2018 Groundwater Monitoring Report* on June 14, 2019.

- Distance to Nearest Watercourse: Eagle Draw is located approximately 0.4 miles to the northwest of the release area. Eagle Draw is an ephemeral watercourse that primarily flows only following rain events. The refinery maintains facility containment berms around storage tanks and along Eagle Draw which prevent releases from entering the watercourse. The release from Tank 106 did not reach Eagle Draw.

- Distance to Nearest Down-gradient Fresh Water Well or Spring: Based on refinery knowledge and New Mexico Office of the State Engineer (NM OSE) online records, the nearest fresh water supply well (RA-313) down-gradient of the release location is located within the refinery property boundary, approximately 1,400 feet (0.27 miles) east from the release location. RA-313 is an irrigation/industrial use well owned and operated by HFNR; it is screened within the deep Artesian aquifer (screened from 904 to 1,157 bgs) and is sampled on an annual basis as part of the facility-wide groundwater monitoring program. NM OSE online records indicate there are additional potential water wells, or Points of Diversion (PODs), located within 0.5-miles of the release location. A screenshot from the NM OSE ArcGIS Online tool showing all potential wells located within 0.5-miles of the release location and a table summarizing available information for any potential domestic, irrigation, or industrial wells are provided in Attachment D (monitoring and recovery wells were omitted from the table). Most of the potential wells identified within 0.5-miles in the NM OSE online database are monitoring or recovery wells. No domestic or irrigation wells are located within 0.5-miles down-gradient of

the release location. There are no known fresh water springs within 0.5-miles of the release location.

SOIL ASSESSMENT ACTIVITIES

TRC Environmental Corporation (TRC) conducted soil assessment activities on behalf of HFNR on June 25, 2019. Soil samples were collected from a total of 28 discrete locations, designated as Boring-01 through Boring-28, at an approximate spacing of one per 200 square feet (ft^2) over the approximate 5,400-ft^2 release area. Soil sample locations are shown on Figure 1.

Discrete soil samples were collected from the open excavation using a decontaminated hand auger. Samples were collected from 0 to 0.5 feet bgs (depth relative to ground surface after soil removal activities) at each soil sample location to evaluate the lateral distribution and extent of potential release impacts. Deeper discrete samples were collected from select sample locations from the 0.5-foot interval above the depth of refusal encountered with the hand auger to evaluate the vertical distribution and extent of potential impacts, as follows:

- 2 to 2.5 feet bgs: Boring-02, Boring -06, Boring -10, Boring -16, and Boring -27; and
- 3.5 to 4 feet bgs: Boring-08, Boring -12, Boring -14, Boring -19, and Boring -22.

Four field duplicate soil samples were also collected for data quality assurance/quality control (QA/QC) purposes. Each soil sample was submitted for the following laboratory analysis:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8260B;
- Total petroleum hydrocarbons (TPH) gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) by Method 8015M; and
- Chloride by Method 300.

Soil samples were field screened for volatile compounds using a photoionization detector (PID). Field PID readings are provided as Attachment E.

SOIL ASSESSMENT RESULTS

Soil analytical results are summarized and compared to applicable 19.15.29 NMAC closure criteria and worker protection criteria in Table 1. The closure criteria are consistent with Table 1 of 19.15.29 NMAC for a minimum depth of <50 feet to groundwater below the horizontal boundary of the release. The worker protection criteria are consistent with the Industrial/Occupational Soil Screening Levels (SSLs, cancer value if available) in Table A-1 of the February 2019 (Revision 2, June 2019) NMED *Risk Assessment Guidance for Investigations and Remediation, Volume I.* Laboratory analytical reports are provided as Attachment F.

Closure Criteria – 19.15.29 NMAC

As highlighted in yellow on Table 1, analytical results indicate the following constituents are present in soil at concentrations that exceed their respective 19.15.29 NMAC closure criteria:

- Benzene: In surface soil samples, benzene concentrations ranged from not detected in Boring-18 to 0.793 mg/kg in Boring-12, which do not exceed the closure criteria. Analytical results exceeded the benzene closure criteria of 10 milligrams per kilogram (mg/kg) in three deeper soil samples collected at Boring-02 (36.3 mg/kg), Boring-06 (10.2 mg/kg), and Boring-19 (60.7 mg/kg). Benzene concentrations in deeper samples increased by up to five orders of magnitude compared to the surface soil samples.

- BTEX: In surface soil samples, BTEX concentrations ranged from 0.00674 mg/kg in Boring-03 to 12.44 mg/kg in Boring-12, which do not exceed the closure criteria. Analytical results exceeded the BTEX closure criteria of 50 mg/kg in seven deeper samples collected at Boring-02 (144 mg/kg), Boring-06 (231 mg/kg), Boring-08 (63.7), Boring-14 (65.6 mg/kg), Boring-16 (58.7 mg/kg), Boring-19 (141 mg/kg), and Boring-22 (216 mg/kg). BTEX concentrations in deeper samples increased by up to five orders of magnitude compared to the surface soil samples.

- TPH: Analytical results exceeded the TPH closure criteria of 100 mg/kg in all soil samples collected except in the surface soil sample at Boring-27. TPH concentrations in surface soil samples ranged from 46 mg/kg at Boring-27 to 17,977 mg/kg at Boring-13. TPH concentrations in deeper soil samples ranged from 131 mg/kg at Boring-12 to 9,030 mg/kg at Boring-22. The relative magnitude of GRO, DRO, and MRO concentrations at each sample location varied laterally and vertically across the release area. GRO concentrations increased up to four orders of magnitude in deeper samples compared to surface soil samples, while DRO and MRO concentration generally decreased in deeper soil samples. GRO concentrations were generally greater than DRO and MRO concentrations in the deeper samples, while DRO concentrations were generally greater than GRO and MRO concentrations in the surface soil samples.

- Chloride: Analytical results exceeded the chloride closure criteria of 600 mg/kg in surface samples at Boring-04, Boring-14, Boring-16, Boring-21, and Boring-24; and in deeper samples collected at Boring-02, Boring-12, Boring-14, Boring-16, and Boring-22. Chloride concentrations increased with depth across the release area, with concentrations ranging from 105 mg/kg (Boring-25) to 850 mg/kg (Boring-21) in surface samples; and from 335 mg/kg (Boring-08) to 2,410 mg/kg (Boring-16) in deeper samples.

Benzene, toluene, ethylbenzene, xylenes, GRO, DRO, and chloride have historically been detected in down-gradient monitoring well MW-64 prior to the Tank 106 release date at concentrations that exceed their respective critical groundwater screening levels (CGWSLs), as reported to the OCD

in previous annual groundwater monitoring reports and the *2018 Annual Groundwater Monitoring Report* that was submitted on June 13, 2019. The location of monitoring well MW-64 relative to the release area is shown on Figure 1.

Worker Protection Criteria – NMED SSLs

The bulk of the surface soil impacts associated with the March 2019 release were removed during initial release response activities as described above. As highlighted in purple on Table 1, analytical results indicate the following constituents are present in soil at concentrations that exceed their respective worker protection criteria (Industrial/Occupational Soil SSLs):

- TPH GRO: Analytical results did not exceed the GRO worker protection criteria in any surface soil samples collected from across the release area. GRO exceeded the worker protection criteria of 500 mg/kg in deeper soil samples collected at Boring-06, Boring-08, Boring-10, Boring-14, Boring-16, Boring-19, and Boring-22 with a maximum concentration of 2,990 mg/kg in Boring-22.
- TPH DRO: Analytical results exceeded the DRO worker protection criteria of 3,000 mg/kg in surface samples at Boring-04, Boring-08, Boring-09, Boring-12, Boring-13, Boring-17, Boring-18, and Boring-23 with a maximum concentration of 11,300 mg/kg in Boring-13. DRO exceeded the worker protection criteria in the deeper sample collected at Boring-22 (5,700 mg/kg).
- TPH MRO: Analytical results exceeded the MRO worker protection criteria of 3,800 mg/kg in surface samples at Boring-09, Boring-13, Boring-17, and Boring-23 with a maximum concentration of 6,640 mg/kg in Boring-13. MRO did not exceed the worker protection criteria in any of the deeper soil samples collected.

WORKER PROTECTION CORRECTIVE MEASURES

To prevent refinery workers from potential exposure to residual impacted surface soil within the release area, HFNR placed and compacted at least one foot of clean soil over the entire release area. The clean soil was then covered with at least one inch of gravel. The soil cover will protect workers during routine operations and maintenance activities in accordance with the NMED *Risk Assessment Guidance for Investigations and Remediation, Volume I*. HFNR maintains a safety and excavation work permit program that will prevent any excavation of this area without approval of the refinery Environmental Department. Appropriate measures will be taken to protect workers during excavation activities in the event excavation is required within the release area.

REQUEST FOR VARIANCE TO 19.15.29.11(A)(5), 19.15.29.11(B), AND 19.15.29.12 NMAC – ASSESSMENT AND REMEDIATION

HFNR recovered the material released from Tank 106 in March 2019 (over 40 bbls recovered as free liquid and the remaining less than 10 bbls excavated within 85 cubic yards of stained/oily soil) and completed release assessment activities as described above. However, vertical and lateral delineation of detected constituents to 19.15.29.12 NMAC closure criteria is not complete and HFNR believes it is impractical to complete as described further below. Per 19.15.29.14 NMAC, OCD can allow a variance to any part of 19.15.29 NMAC if a written request for a variance is submitted that includes, *(1) a detailed statement explaining the need for a variance; and (2) a detailed written demonstration that the variance will provide equal or greater protection of fresh water, public health and the environment.*

Need for a Variance

Setting aside the scope of applicability of 19.15.29 NMAC, this set of regulations is intended to address releases to the environment from oil and natural gas development and production. In most cases, such releases occur on public or private property that does not belong to the responsible party, and in some cases is uncontrolled and accessible to the general public. They also most likely occur in areas where soil, groundwater, and surface water resources are not already impacted, and where released materials are exposed to surface runoff. These areas are primarily not under the jurisdiction of a hazardous waste permit and/or an OCD discharge permit. In these situations, the conservative remediation requirements of 19.15.29 NMAC are warranted and appropriate. However, in an operating oil refinery, the rigorous application of the closure standards in 19.15.29.12 NMAC Table 1 without consideration of land use and physical control of the area, pre-existing impacts to soil and groundwater, and ongoing remediation programs is impractical and places unnecessary burden on the refinery and the OCD.

HFNR believes that BTEX, chlorides, and TPH are present in varying concentrations in soil and groundwater throughout the refinery due to spills associated with historic operation of the refinery. Because of these historical spills, HFNR believes it is impractical to delineate the March 2019 Tank 106 release for BTEX, chlorides, and TPH in soil to the standards provided in 19.15.29.12 NMAC Table 1. The standards provided in 19.15.29.12 NMAC Table 1 are intended to be protective of previously un-impacted areas. Furthermore, the refinery is already operating under permits from OCD and NMED that require investigation, remediation, and monitoring, address soil and groundwater impacts.

The release occurred within the Southeast Tank Farm Area which is listed as AOC 3 in the refinery's RCRA PCC Permit and is therefore also subject to investigation and corrective action in accordance with the PCC Permit under the direction of the NMED. As refinery operations will continue for the foreseeable future and investigation and corrective action of AOC 3 will also be conducted in accordance with the PCC Permit under the direction of the NMED, there is no net

benefit to human health and the environment to remediate this release to the standard provided in 19.15.29.12 NMAC Table 1. In fact, remediation and replacement with clean soils that would likely be re-impacted by fluctuating groundwater levels and/or future releases from an operating facility is inappropriate and is not supported by Environmental Protection Agency (EPA) corrective action guidance for operating facilities, which advises againstsuch an approach. Therefore, a variance from the requirements to assess and remediate to 19.15.29.12 NMAC Table 1 standards is needed.

Equal or Greater Protection of Fresh Water, Public Health, and the Environment

HFNR believes that the initial and subsequent response to the release mitigated any imminent risk to human health, or the environment. A cover material was placed in the spill area in order to provide separation distance so that the residual soil in exceedance of worker protection criteria that was exposed during release abatement activities is covered to ensure refinery workers are not exposed to the residual soil impacts during routine operations and maintenance activities. The refinery is secured continuously, preventing access to the area by the general public. The area is located within an existing tank berm, which will prevent any migration of surface water from the area. HFNR will continue to monitor shallow groundwater beneath and down-gradient of the release area (MW-64), which already contains constituents at concentrations greater than any potential leachate from the materials left in place from this release, on a semi-annual basis as part of the facility-wide groundwater monitoring program. HFNR also maintains an ongoing groundwater remediation program which includes recovering impacted groundwater from recovery trenches and wells located down-gradient of the release area.

Further excavation or active remediation of remaining soils at this release area would require the use of heavy or specialized equipment. These alternatives are not practical to implement in this area. The areal extent of the soil in exceedance of 19.15.29.12 NMAC Table 1 standards likely extends beneath sensitive refinery infrastructure (including tanks, process equipment, etc.,) and within engineered fill that supports and stabilizes sensitive refinery infrastructure. Excavation within the process areas (including tank farms) of the refinery also results in greater risk of causing another release, and greater potential for exposure to the general public through the transfer of the risk to another location. All potential additional remediation alternatives have a net negative effect on the environment as compared to leaving the materials in place within the active operating refinery and following on-going regulatory program requirements at the refinery. Thus, a variance from these requirements provides equal protection to fresh water, human health, and the environment. Finally, as stated above, the spill area is with an AOC identified in the RCRA PCC Permit and is subject to facility-wide corrective actions. Therefore, at the appropriate time (e.g., when land use or exposure assumptions change), the area will be fully-evaluated and remediated to ensure protection of human health and the environment consistent with its intended use.

A final Form C-141 (Site Assessment/Characterization and Closure) is included as Attachment A. If you have any questions or comments regarding this request, please feel free to contact me at 575-746-5487 or Robert Combs at 575-746-5382.

Sincerely,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Attachments:

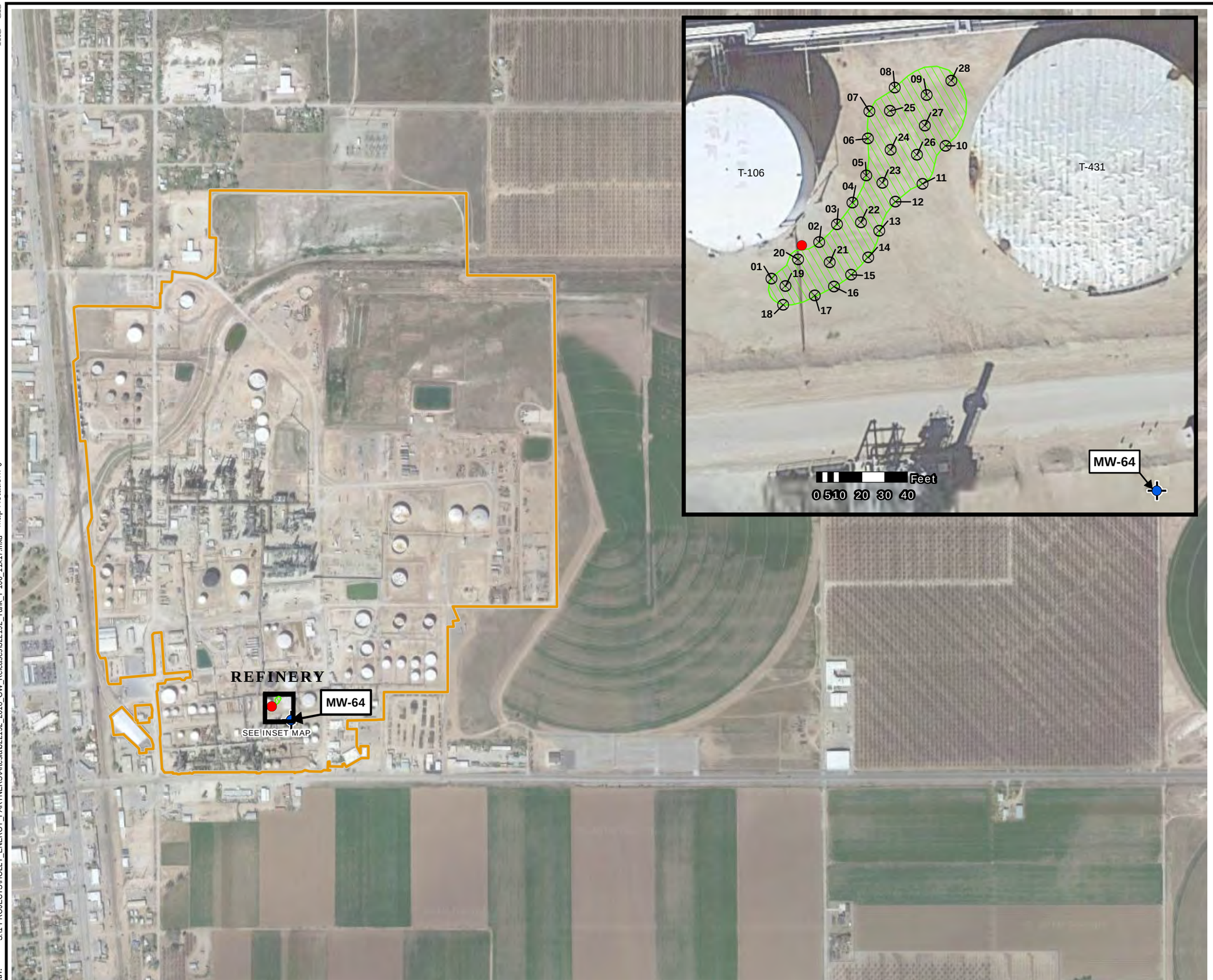
Figure 1 – March 2019 Tank 106 Release Location and Soil Sample Location Map

Table 1 – Surface Soil Analytical Results

Attachment A – Site Assessment/Characterization, Remediation Plan, and Closure Form C-141
Attachment B – Soil Disposal Documentation
Attachment C – Safety Data Sheets of Microbes and Surface Washing Agent Applied to Release Area
Attachment D – Summary of Potential Fresh Water Wells Located within 0.5-miles of the Release Location
Attachment E – Field PID Readings s
Attachment F – Laboratory Analytical Reports

cc: HollyFrontier: R. Combs, J. Leik
TRC: J. Speer, C. Smith, C. Crain

FIGURE



LEGEND

- TANK 106 RELEASE LOCATION (3/26/2019)
- MONITORING WELL
- SOIL SAMPLE LOCATION
- EXTENT OF RELEASE
- FENCELINE
- 10 — SOIL SAMPLE NUMBER, CORRELATES WITH ASSOCIATED SAMPLE ID (e.g., BORING-01)

BASEMAP AERIAL IMAGE FROM GOOGLE AND THEIR DATA PARTNERS, 3/12/2016.

N

0 750 1,500 Feet

1 " = 750 '

1:9,000

PROJECT:

HOLLYFRONTIER NAVAJO REFINING LLC
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

TITLE:

MARCH 2019 TANK 106 RELEASE LOCATION AND SOIL SAMPLE LOCATION MAP

DRAWN BY:	S. RAY	PROJ. NO.:	322192
CHECKED BY:			
APPROVED BY:			
DATE:	SEPTEMBER 2019		

FIGURE 1

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FILE NO.: 322192_Tank_T-106_11x17.mxd

Plot Date: 9/9/2019, 14:30:26 PM by SRAY -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\HOLLY_ENERGY_PARTNERS\Artesia\322192_2018_GW_Releases\322192_Tank_T-106_11x17.mxd
Coordinate System: NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US (Foot US)
Map Rotation: 0

TRC - GIS

Table

Table 1. Soil Analytical Results, March 2019 Tank 106 Release
HollyFrontier Navajo Refining LLC
Artesia Refinery, GW-028
Artesia, New Mexico

Sample Location	Sample Interval (feet bgs)[1]	Volatile Organic Compounds by Method 8260B: Benzene (mg/kg)	Ethylbenzene (mg/kg)	Toluene (mg/kg)	Total Xylenes (mg/kg)	BTEX (mg/kg)	Total Petroleum Hydrocarbons by Method 8015M: TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	TPH GRO + DRO + MRO (mg/kg)	Chloride (mg/kg)	Current Soil Status
Closure Criteria[2] (Table 1 of 19.15.29.12 NMAC)		10	--	--	--	50	--	--	--	100	600	
Worker Protection Criteria [3] (NMED 2019 Guidance)		87.2	368	61,300	4,280	--	500	3,000	3,800	--	5.84E+07	
BORING-01-0-0.5	0 - 0.5	0.00192	0.00799	0.00468 J	0.0126	0.02719	0.281	2,140	2,000	**4,140**	169	At least 1 feet of clean soil and 1 inch of gravel placed on top of ground surface to protect workers from soil in exceedance of Industrial Worker SSLs during routine maintenance and grounds-keeping activities (2.3.1 of NMED Risk Assessment Guidance, March 2019).
BORING-02-0-0.5	0 - 0.5	0.249	0.396	0.0348 J	0.554	1.23	422	**7,250**	**4,140**	**11,812**	145	
BORING-02-3.5-4	3.5 - 4	**36.3**	48.6	7.87	51.4	**144**	**2,310**	1,600	980	**4,890**	**1,360**	
BORING-03-0-0.5	0 - 0.5	0.00180	0.00314	0.00180 J	<0.00518	0.00674	0.141	66.8	145	**212**	182	
BORING-04-0-0.5	0 - 0.5	0.00190	0.00802	0.00729	0.0182	0.03541	1.78	**6,560**	3,270	**9,832**	**804**	
BORING-05-0-0.5	0 - 0.5	0.00175	0.00336	0.00423 J	0.00608 J	0.01542	0.192	951	842	**1,793**	126	
BORING-06-0-0.5	0 - 0.5	0.217	0.692	0.598	4.25	5.76	56.8	1,390	821	**2,268**	133	
BORING-06-3.5-4	3.5 - 4	**10.2**	30.9	36.6	153	**231**	**2,760**	855	191	**3,806**	560	
BORING-07-0-0.5	0 - 0.5	0.00306	0.0660	0.0113	0.559	0.63936	3.04	1,650	739	**2,392**	144	
BORING-07-0-0.5 DUP	0 - 0.5	0.0134	0.115	0.0349 J	1.00	1.16	41.9	1,700	1,180	**2,922**	168 B	
BORING-08-0-0.5	0 - 0.5	0.119	0.581	0.293	2.49	3.48	5.50	**3,850**	2,600	**6,456**	195	
BORING-08-2-2.5	2 - 2.5	0.429	17.0	0.564	45.7	**63.7**	**1,670**	474	7.41	**2,151**	335	
BORING-09-0-0.5	0 - 0.5	0.0149	0.0426	0.0346 J	0.179	0.2711	62.5	**11,200**	**5,410**	**16,673**	218	
BORING-10-0-0.5	0 - 0.5	0.00655	0.0247	0.00393 J	0.109	0.14418	0.967	2,180	1,160	**3,341**	132	
BORING-10-3.5-4	3.5 - 4	0.551	3.51	0.160	1.87	6.09	**688**	398	116	**1,202**	342	
BORING-11-0-0.5	0 - 0.5	0.0218	0.0123	0.0291	0.0712	0.1344	0.185	69.6	206	**276**	182	
BORING-12-0-0.5	0 - 0.5	0.466	2.08	0.408	5.09	8.04	312	**4,080**	1,800	**6,192**	118	
BORING-12-0-0.5 DUP	0 - 0.5	0.793	3.10	0.538	8.01	12.44	261	**3,160**	2,200	**5,621**	203	
BORING-12-2-2.5	2 - 2.5	0.0401	0.129	0.0240 J	0.349	0.5421	38.6	54.9	37.4	**131**	**682**	
BORING-13-0-0.5	0 - 0.5	0.00927	0.0405	0.0223 J	0.353	0.42507	36.7	**11,300**	**6,640**	**17,977**	159	
BORING-14-0-0.5	0 - 0.5	0.0576	0.0981	0.0276	0.174	0.3573	12.8	160	192	**365**	555	
BORING-14-0-0.5 DUP	0 - 0.5	0.0492	0.264	0.0577	0.703	1.07	2.67	163	541	**707**	**648**	
BORING-14-2-2.5	2 - 2.5	3.11	24.1	2.36	36.0	**65.6**	**1,580**	2,360	587	**4,527**	554	
BORING-15-0-0.5	0 - 0.5	0.00456 B	0.0107 B	0.0117	0.0531 B	0.08006	0.571	914	1,170	**2,085**	540	
BORING-16-0-0.5	0 - 0.5	0.0383	0.148	0.0606	0.490	0.7369	1.17	373	1,130	**1,504**	**677**	
BORING-16-3.5-4	3.5 - 4	1.40	11.6	5.99	39.7	**58.7**	**2,050**	929	537	**3,516**	**2,410**	
BORING-17-0-0.5	0 - 0.5	0.00484 J	0.038	0.0165 J	0.255	0.31434	40.7	**4,970**	**4,100**	**9,111**	498	
BORING-18-0-0.5	0 - 0.5	<0.00203	0.132	0.0146 J	0.920	1.07	53.5	**4,170**	3,700	**7,924**	480	
BORING-19-0-0.5	0 - 0.5	0.00152 B	0.00415 B	0.00522 J	0.0132 B	0.02409	0.136	1,000	964	**1,964**	290	
BORING-19-0-0.5 DUP	0 - 0.5	<0.000935	0.00459 J	0.00477 J	<0.0112	0.00936	0.0723 J	701	575	**1,276**	332	
BORING-19-2-2.5	2 - 2.5	**60.7**	74.6	1.57	3.89	**141**	**1,620**	2,760	2,600	**6,980**	**932**	
BORING-20-0-0.5	0 - 0.5	0.00416	0.0102	0.0115	0.0238	0.04966	2.88 JB	1,720	1,630	**3,353**	201	
BORING-21-0-0.5	0 - 0.5	0.00115 B	0.00284 J B	0.00231 J	0.00955 B	0.01585	0.156	888	1,170	**2,058**	**850**	
BORING-22-0-0.5	0 - 0.5	0.0672	0.163	0.165	0.679 B	1.07	91.1	1,830	1,330	**3,251**	146	
BORING-22-2-2.5	2 - 2.5	8.64	33.6	31.9	142	**216**	**2,990**	**5,700**	340	**9,030**	**1,230**	
BORING-23-0-0.5	0 - 0.5	0.00894	0.0318	0.0198 J	0.129	0.18954	37.0	**7,110**	**5,720**	**12,867**	285	
BORING-24-0-0.5	0 - 0.5	0.00135 B	0.00265 J B	0.00479 J	0.0103 B	0.01909	0.176	138	555	**693**	**610**	
BORING-25-0-0.5	0 - 0.5	0.00337	0.00655	0.00907	0.0140	0.03299	5.92	980	928	**1,914**	105	
BORING-26-0-0.5	0 - 0.5	0.00805	0.0110	0.0122	0.0263	0.05755	5.20	600	600	**1,205**	185	
BORING-27-0-0.5	0 - 0.5	0.000766 J B	0.00433 B	<0.00157	0.0156 B	0.0207	0.160	19.6	26.1	46	193	
BORING-27-3.5-4	3.5 - 4	0.0967 B	0.996	0.0339 J	0.953 B	2.08	272	185	55.2	**512**	427	
BORING-28-0-0.5	0 - 0.5	0.00141 B	0.00509 B	0.00563 J	0.0163 B	0.02843	0.417	1,760	1,520	**3,280**	152	

Notes:

[1] Sample depth relative to ground surface after initial release abatement activities completed, including soil removal.

[2] Closure Criteria based on depth to water <50 feet below ground surface.

[3] NMED Risk Assessment Guidance for Site Investigations and Remediation, March 2019 (Revision 2 June 2019)
BTEX: Table A-1, Industrial/Occupational Soil SSL (cancer value if available)
TPH: Table 6-2, Industrial/Construction Worker Exposure (Gasoline for GRO, Diesel #2 for DRO, Unknown Oil for MRO)

144	Analytical result exceeds Closure Criteria (Table 1 of 19.15.29.12 NMAC), but not the NMED Industrial Worker Exposure SSL if applicable.
4,140	Analytical result exceeds NMED Industrial Worker Exposure SSL.
<0.00507	Analyte not detected above sample detection limit.

B = Analyte detected in the associated laboratory method blank.

BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes

DRO = Diesel Range Organics (>C10-C28)

DUP = Duplicate Sample

feet bgs = feet below ground surface

GRO = Gasoline Range Organics (C6-C10)

J = Analyte detected above sample detection limit, but below method quantitation limit. Estimated concentration.

MRO = Motor Oil Range Organics (>C28-C40)

mg/kg = milligrams per kilogram

NMAC = New Mexico Administrative Code

TPH = Total Petroleum Hydrocarbons

ATTACHMENT A

Form C-141 – Site Assessment/Characterization and Closure

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release? **At monitoring well MW-64 in October 2018, located 180 feet southwest of Tank 106**	15.65 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site? **Release contained within tank's secondary containment (earthen berms) within Refinery**	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs – **Not Applicable**
- ☐ Photographs including date and GIS information – **Not Applicable**
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 9/20/19

email: Robert.Combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
See Figure 1

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
Not applicable as described in the attached letter report which requests a variance to remediation of 19.15.29.12 NMAC closure criteria.

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
See Table 1

☒ Description of remediation activities
Impacted soil (based on indications of moisture, staining, and odor) was removed and placed into roll off bins and transported offsite for disposal. Following characterization/confirmation sampling, a cover of at least one foot of clean soil was placed over the entire release area. The clean soil was then covered with at least one inch of gravel. The soil cover will protect workers during routine operations and maintenance activities.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 9/20/19

email: Robert.Combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ATTACHMENT B

Soil Disposal Documentation

.003 T.F

Contaminated Soils Shipment Manifest

1. Manifest Document No. 2019028 3

2. Page ____ of ____

GENERATOR

3. Generator's Name and Mailing Address
HollyFrontier Navajo LLC
PO Box 159
Artesia, NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard L. Orosco

TRANSPORTER

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.

8. Transporter 2 Company Name

9. ID No.

GMI

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP1041

12. Facility Phone No.
575-347-0434

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt./Vol.
a. Tank bottoms	1	CM	17	YDS
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit 2
Bin # 1

18. Generator's Certification:

I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco	RLOrosco	

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Valeria Rueda	Valeria Rueda	06/17/19

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name	Signature	Date
Kimberly Pierce	Kimberly Pierce	06/17/19

2019-07-09 28740 .004 TLP

Contaminated Soils Shipment Manifest

1. Manifest Document No. 2019023G

2. Page ____ of ____

GENERATOR

3. Generator's Name and Mailing Address
HollyFrontier Navajo LLC
PO Box 159
Artesia, NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard L. Orosco

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.
11

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP1041

12. Facility Phone No.
575-347-0434

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt. Vol.
a. Tank 106 Oily dirt from Unit 2 (19,840)	1	CM	17	yards
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit 2
Bin # 105

18. **Generator's Certification:** *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco		

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Abel Gomez JT		06/06/19

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name	Signature	Date
		06/06/19

2019-02-19 28740 .007 TP

Contaminated Soils Shipment Manifest

1. Manifest Document No. 20190216 0

2. Page ____ of ____

GENERATOR

3. Generator's Name and Mailing Address
HollyFrontier Navajo LLC
PO Box 159
Artesia, NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard L. Orosco

TRANSPORTER

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.
12

8. Transporter 2 Company Name

9. ID No.

GENERATOR

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP1041

12. Facility Phone No.
575-347-0434

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt.Vol.
a. Oily Land	1	CM	17.19	T
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit 2 Tank Mtn
Bin # 01

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysts done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco	[signature]	

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
[illegible]	[signature]	02/20/19

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name	Signature	Date
[illegible] Johnson	[signature]	02/20/19

Contaminated Soils Shipment Manifest

1. Manifest Document No. 20190422

2. Page ____ of ____

GENERATOR

3. Generator's Name and Mailing Address
HollyFrontier Navajo LLC
PO Box 159
Artesia, NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard L. Orosco

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No. TRK #10

8. Transporter 2 Company Name

9. ID No. TRL-13

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP1041

12. Facility Phone No.
575-347-0434

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt.Vol.
a. Oily Dirt	1	CM	1	yards
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit 2-Tank 106
Bin # 63

18. Generator's Certification: *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco		09/04/19

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
		09/04/19

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
John Rice		9-4-19

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name	Signature	Date

Contaminated Soils Shipment Manifest

1. Manifest Document No. 20190385

2. Page ____ of ____

GENERATOR

3. Generator's Name and Mailing Address
HollyFrontier Navajo LLC
PO Box 159
Artesia, NM 88211-0159

4. Generator Phone No.
575-748-3311

5. Generator Contact
Richard L. Orosco

TRANSPORTER

6. Transporter 1 Company Name
S Brothers Waste Services Inc.

7. ID No.
5

8. Transporter 2 Company Name

9. ID No.

GENERATOR

10. Designated Disposal Facility Name and Site Address
Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number
DP1041

12. Facility Phone No.
575-347-0434

13. Description of Waste	14. Containers No	14. Containers Type	15. Total Quantity	16. Unit Wt.Vol.
a. Oil, Dirt	1	CM	17	
b.				
c.				

17. Special Handling Instructions and Additional Information
Unit Tank 106
Bin # 151

18. **Generator's Certification:** *I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.*

FURTHER. I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods.

Printed/Typed Name	Signature	Date
Richard L. Orosco	RLOsw	05/17/17

TRANSPORTER

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date
Jo Flores		05/17/17

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date

GMI

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name	Signature	Date

ATTACHMENT C

Safety Data Sheets of Microbes and Surface Washing Agent Applied to Release Area

MATERIAL SAFETY DATA SHEET

Hazardous Materials Identification System
4=Extreme/Severe 3=High/Serious
2=Moderate 1=Slight 0=Minimum

Health	1
Fire	0
Reactivity	0
Personal PE	E

Product Name:

TERMINATOR-HSD Soil Cleaner

C.A.S. # N/A
Effective Date: 6/13
Supersedes: All previous

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Non-hazardous, mixed naturally occurring, non-altered, microbes on a calcified seaweed base with available nutrients.
Calcified Seaweed Base: *Lithothamnium Calcareum*

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point Freezing/Melting Point	N/A N/A	Specific Gravity (H_2O= 1)	>1.0
Vapor Pressure (mm H/g)	N/A	Decomposition Temperature	>850 °C
Vapor Density (Air= 1)	N/A	Evaporation Rate (Butyl Acetate= 1)	Will not evaporate
Solubility in Water: Partial pH @ 1% Solution: Approx. 10.0			
Appearance and Odor: Gray to off-white powder, slight marine odor.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used)	N/A	Flammable Limits	N/A	LEL	UEL

Extinguishing Media: NONE, product is non-flammable.
Special Fire Fighting Procedures: NONE
Unusual Fire and Explosion Hazards: NONE

SECTION V - REACTIVITY DATA

Stability: Stable at ambient temperatures and atmospheric pressure.
Conditions to avoid: Protect from moisture and excessive heat.
Incompatibility (Materials to avoid): Strong Acids
Hazardous Decomposition or Byproducts: Reacts with acids liberating Carbon Dioxide
Hazardous Polymerization: Will NOT occur

SECTION VI - HAZARDOUS HEALTH DATA

EXPOSURE LIMITS
Chemical Name(s): ACGIH (TWA) OSHA(TWA)
NONE

EFFECTS OF SINGLE OVEREXPOSURE:
Swallowing: Ingestion of large quantities may result in abdominal discomfort including nausea, vomiting, cramps, and diarrhea.
Skin Absorption: Not absorbed through skin.
Inhalation: May cause mechanical irritation to eyes and lungs with prolonged exposure.
Eye contact: May cause eye irritation.

TERRADIS LLC.
2385 S. Lipan Street, Denver, CO 80223
Tel: 720-903-9591 Fax: 866-339-2920

EFFECTS OF REPEATED OVEREXPOSURE: Prolonged or repeated contact with powders may cause allergic reactions in hypersensitive individuals.
Other Effects of Overexposure: NONE
Existing Medical Conditions Possibly Aggravated by Exposure: Respiratory allergy (hay fever, asthma) in some people.
Carcinogenicity: This product does not contain any ingredient designated by IARC, NTP, ACHIH, or OSHA as a probable human carcinogen.

EMERGENCY AND FIRST AID PROCEDURES:
Swallowing: Get medical attention if allergic symptoms develop (observe for 48 hours). Never give anything by mouth to an unconscious or convulsing person. Get medical attention.
Skin: Wash exposed areas with soap and water. Get medical attention if allergic reaction occurs.
Inhalation: Remove patient to fresh air. If breathing is difficult or allergic reaction or irritation develops, administer oxygen and get medical attention.
Eyes: In case of contact, flush eyes with plenty of water at least 15 minutes using an eyewash fountain, if available. Get medical attention if eye irritation occurs or persists.
NOTES TO PHYSICIANS: All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be taken if Material is released or spilled: All personnel involved in the cleanup must wear protective clothing. **NO** emergency results from spillage. However, spills should be cleaned up promptly. To the extent possible, clean up spills using shovels. Sweep spilled material, being careful not to create dust.

Waste disposal method: No special disposal method. Product may be sewered, and is compatible with all known biological treatment methods. Dispose of in accordance with local, state, and federal regulations.

Precautions to be taken in Handling and Storing: Keep dry and at room temperature. Avoid prolonged skin contact.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Respiratory Protection:	Surgical mask or equivalent.
Ventilation:	Provide adequate ventilation. Use local exhaust as needed if dusting occurs.
Protective clothing:	Work gloves
Eye Protection:	Safety glasses or goggles
Other protective clothing:	Dusting protection.
Work/Hygienic Practices:	Avoid dust. Do not ingest. Wash hands with soap and water after using material.

SECTION IX REGULATORY STATUS

TSCA Inventory Status:	This product is not listed on the TSCA inventory.
Transportation Status: DOT:	Not regulated.
Reportable Quantity (RQ) under 49 CFR 172. 101 Appendix:	Not listed.
SARA Title III:	
Section 302 Extremely Hazardous Substance List:	Not required.
Section 313 Toxic Chemicals:	Not required.
Reportable Quantity (RQ) under US EPA CERCLA:	Not listed.
RCRA Hazardous Waste:	Not listed.

The information herein is given in good faith, but no warranty - expressed or implied - is made.
N/A=Not applicable. N/E=Not established.

Safety Data Sheet

1. Product and company information

Name: **Gold Crew SW, EPA/NCP Listed, Surface Washing Agent**
Manufacturer: Environmental Chemical Solutions
P.O. Box 2029
Gig Harbor, WA 98335
Tel: (877) 253-2667 Fax: (253) 263-8037
www.ecschem.com

2. Hazards Identification

ROUTE OF ENTRY:
SKIN CONTACT.....PROLONGED OR REPEATED EXPOSURE MAY CAUSE SKIN IRRITATION,
SKIN ABSORPTION.....A SINGLE PROLONGED SKIN EXPOSURE IS NOT LIKELY TO RESULT IN THE MATERIAL BEING ABSORBED THROUGH SKIN IN HARMFUL AMOUNTS. THE DERMAL LD50 HAS NOT BEEN DETERMINED.
EYE CONTACT.....MAY CAUSE IRRITATION
NO HAZARDS ANTICIPATED FROM SWALLOWING SMALL AMOUNTS INCIDENTAL TO NORMAL HANDLING OPERATIONS. LARGE AMOUNTS MAY CAUSE GASTROINTESTINAL IRRITATION.
EFFECTS OF ACUTE EXPOSURE.....SEE ABOVE
EFFECTS OF CHRONIC EXPOSURE.....NO RELEVANT INFORMATION FOUND.

3. Composition/information on ingredients

Water
Proprietary Blend of Ethoxylated Octylphenolic Surfactants

4. First aid measures

Emergency First Aid Procedures -
Eyes: Flush thoroughly with water for 15 minutes. Get medical attention.
Skin: Remove contaminated clothing. Wash exposed areas with soap and water. Wash clothing before reuse. Get attention if irritation develops.

Ingestion: Get medical attention.
Inhalation: None considered necessary.

5. Fire-fighting measures

T.D.G. FLAM. CLASS.....NOT REGULATED
FLAMMABILITY.....NOT FLAMMABLE
SPECIAL PROCEDURES.....WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS.
FLASH POINT (C), METHOD ……..NONE
AUTO IGNITION TEMPERATURE……...N.AV.
UPPER FLAMMABLE LIMIT (% BY.....N.AP. VOL.)
LOWER FLAMMABLE LIMIT (% BY.....N.AP. VOL.)
EXPLOSION DATA
EXPLOSIVE POWER.....N.AV.
RATE OF BURNING.....N.AV.
SENSITIVITY TO STATIC..... .N.AV.
DISCHARGE SENSITIVITY TO IMPACT.....N.AV.
UNUSUAL FIRE AND EXPLOSION**...**…….....NONE
HAZARDOUS COMBUSTION PRODUCTS....HAZARDOUS COMBUSTION PRODUCTS MAY INCLUDE AND ARE NOT LIMITED TO OXIDES OF NITROGEN

6. Accidental release measures

Precautions to be taken in Handling and Storage: Use good normal hygiene.
Precautions to be taken in case of Spill or Leak -

Small spills. Soak up with absorbent materials.
Large spills: dike and contain. Remove with vacuum truck or pump to storage/salvage vessel. Soak up residue with absorbent materials.

Waste Disposal Procedures: Dispose in an approved disposal area or in a manner that complies with all local, state, and federal regulations.

7. Handling and storage

AVOID CONTACT WITH EYES, SKIN, AND CLOTHING.
HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES.
STORAGE NEEDS:
NORMAL STORAGE CONDITIONS. STORE AWAY FROM INCOMPATIBLE MATERIALS.

8. Exposure controls/personal protection

GLOVES/ TYPE.....IMPERVIOUS FOR SOLUTIONS OR WHERE CONTACT IS REPEATED

9. Physical and chemical properties

Flash Point:	None	Melting Point:	32F
Specific Gravity:	1.028 ±.01	Vapor Pressure mm/Hg:	NA
Pounds Per Gallon	8.57	Vapor Density Air 1:	NA
Solubility in Water	Complete	Reactivity with Water:	No
Viscosity	15 Centipoise	Surface Tension 5%:	29.1 Dyne/cm at 25°C
Evaporation Rate:	>1 as compared to Water	pH:	9.5 ±.75
Appearance:	Light Gold Color	Fire Extinguisher Media:	NA
Odor:	None	Fire Fighting Procedures:	NA

10. Stability and reactivity

Stability: Stable
Polymerization: No
Incompatible Substances: None known
Hazardous Decomposition Products: NA

11. Toxicological information

Threshold limit values: NA
Signs and symptoms of over exposure:
Acute: Moderate eye irritation. Skin: Causes redness, edema, drying of skin.
Chronic: Pre-existing skin and eye disorders may be aggravated by contact with this product.
Medical Conditions Generally Aggravated by Exposure: Unknown
Carcinogen: No

12. Ecological information

No relevant information found.
Persistence and Degradability
Material is readily biodegradable. All surfactant components Passes OECD test(s} for ready biodegradability.
Aquatic toxicity is very low

13. Disposal Considerations

Dispose in accordance with local, state, and federal regulations

14. Transport information

DOT Class:	Not Regulated/Non Hazardous	Freeze Temperature:	28°F
Storage:	35°F-120°F	Freeze Harm:	None
Shelf Life:	Approximately one year unopened		

15. Regulatory information

Gold Crew SW is on the U.S. Environmental Protection Agency's NCP Product Schedule. This listing does NOT mean that EPA approves, recommends, licenses, certifies or authorizes the use of Gold Crew SW on an oil discharge. This listing means only that data have been submitted to EPA as required by subpart J of the National Contingency Plan § 300.915.

The Information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application, which is not described on the Product label or in this Material Safety Data Sheet is the sole responsibility of the user. This Material Safety Data Sheet was prepared to comply with the OSHA Hazardous Communication Regulation.

All information appearing herein is based upon data obtained by the manufacturer and technical sources. Judgments as to the suitability of information herein for the purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of this information, ICS, ECS or Gold Crew, or its distributors extends no warrantees, makes no representations and assumes no responsibility as to the suitability of such information for application to purchasers intended purposes or for consequences of its use.

16. Other information

Generic Description: Water Based, Biodegradable, Wetting Agents & Surfactants
HMIS Code: Health 0, Fire 0, Reactivity 0
HMIS Key: 4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Insignificant
D.O.T. Class: Not regulated; not hazardous
Formula: Proprietary

ATTACHMENT D

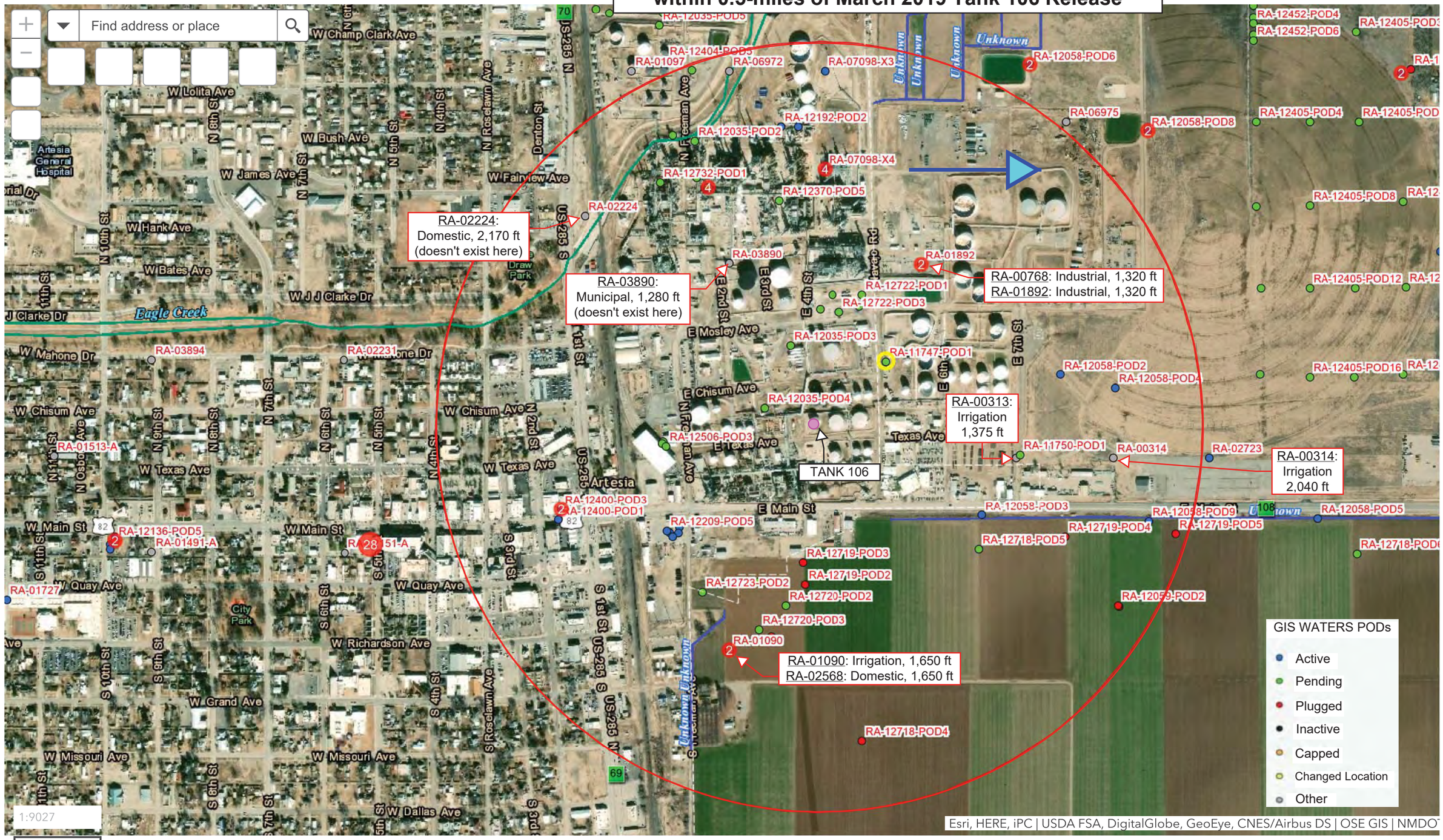
Summary of Potential Fresh Water Wells Location within 0.5-miles of the Release Location

OSE POD Locations

Points of Diversion visible at 1:19,000 with 1,000 features per view

ATTACHMENT D.1 - Summary of Water Wells Identified within 0.5-miles of March 2019 Tank 106 Release

Water Rights Look Up



0.5-mile radius around release location

Groundwater flow direction

Release Location

Denotes well ID, type, and approximate distance from release location for each fresh water well source identified within 0.5 miles of release in NM OSE online database

Attachment D.2 - Water Wells Identified within 0.5-miles of March 2019 Tank 106 Release

POD #	Basin	Install Date	Well Depth (ft)	Primary Purpose/Use	Owner Name	Approx. Distance & Location from Release Location	Comments
RA 02568	Roswell Artesian	1/25/1950	232	Domestic	HollyFrontier Navajo Refining LLC	1,650 feet southwest	--
RA 00313	Roswell Artesian	10/1/1940	1,157	Irrigation	Navajo Refining Company	1,375 ft east/southeast	--
RA 00314	Roswell Artesian	NA	NA	Irrigation	Navajo Refining Company	2,040 ft east/southeast	--
RA 01090	Roswell Artesian	NA	NA	Irrigation	G.G. Armstrong & Son, LLC	1,650 feet southwest	Located within Navajo property.
RA 03890	Roswell Artesian	NA	NA	Municipal	City of Artesia	1,280 feet northwest	Well does not exist at this location (NM OSE location data shows within Navajo property).
RA 00768	Roswell Artesian	NA	NA	Industrial	Navajo Refining Company	1,320 feet northeast	--
RA 02224	Roswell Artesian	NA	NA	Domestic	H.E. Flowers	2,170 feet northwest	Well does not exist at this location (NM OSE location data shows within Navajo property).
RA 01892	Roswell Artesian	12/31/1910	1,180	Industrial	Navajo Refining Company	1,320 feet northeast	--

NA = Not Available

POD = Point of Diversion

Data obtained from New Mexico Office of the State Engineer. Monitoring, observation, and pollution control wells were omitted from this table.

ATTACHMENT E

Field PID Readings

Number	Name	Time	PID	
~~1~~	~~Boring-01-0-0.5~~	~~1440~~	~~14.8~~	~~1440~~
2A	Boring-02-0-0.5	1150	385.3	
2B	Boring-02-2-2.5	1200	1019	
~~2C~~ 3C	Boring-02-3.5-4	1210	1344	
3	Boring-03-0-0.5	1220	4.7	
4	Boring-04-0-0.5	1230	17.5	
5	Boring-05-0-0.5	1240	7.0	
6A	Boring-06-0-0.5	1120	9.2	
6B	Boring-06-2-2.5	1130	2994	
6C	Boring-06-3.5-4	1140	3839	
7	Boring-07-0-0.5	1250	38.5	Dup-04
8A	Boring-08-0-0.5	0830	17.0	
8B	Boring-08-2-2.5	0840	2690	
8C	Boring-08-3.5-4	0850	2043	
9	Boring-09-0-0.5	1300	48.3	
10A	Boring-10-0-0.5	0800	13.6	~~0800~~
10B	Boring-10-2-2.5	0810	35.8	~~0810~~
10C	Boring-10-3.5-4	0820	1910	~~0820~~
11	Boring-11-0-0.5	1310	6.0	
12A	Boring-12-0-0.5	0900	50.5	D-P-01
12B	Boring-12-2-2.5	0910	1416	
12C	Boring-12-3.5-4	0920	169.3	
13	Boring-13-0-0.5	1320	36.6	
14A	Boring-14-0-0.5	0930	105.6	Dup-02
14B	Boring-14-2-2.5	0940	1295	

14C	Boring-14-3.5-4	0950	244.6	
15	Boring-15-0-0.5	1330	16.0	
16A	Boring-16-0-0.5	1000	16.9	
16B	Boring-16-2-2.5	1010	179.8	
16C	Boring-16-3.5-4	1020	1671	
17	Boring-17-0-0.5	1340	50.4	
18	Boring-18-0-0.5	1450	9.3	
19A	Boring-19-0-0.5	[illegible]	28.5	← DNP 500 03
19B	Boring-19-2-2.5	[illegible]	798.2	1510
19C	Boring-19-3.5-4	Not collected, refusal @ 30"		
20	Boring-20-0-0.5	1520	14.0	
21	Boring-21-0-0.5	1530	12.6	
22A	Boring-22-0-0.5	1100	47.0	
22B	Boring-22-2-2.5	1110	165.3	
22C	Boring-22-3.5-4	[illegible]	Not collected, refusal @ 30"	
23	Boring-23-0-0.5	1350	22.7	
24	Boring-24-0-0.5	1400	7.2	
25	Boring-25-0-0.5	1410	12.2	
26	Boring-26-0-0.5	1420	7.0	
27A	Boring-27-0-0.5	1030	56.7	
27B	Boring-27-2-2.5	1040	2017	
27C	Boring-27-3.5-4	1050	2314	
28	Boring-28-0-0.5	1430	6.3	

ATTACHMENT F

Laboratory Analytical Reports

(on compact disc)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 04, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1113484
Samples Received:	06/27/2019
Project Number:	322192.2019.0000.
Description:	HFNR - Tank 106 Release-Artesia

Report To: Cindy Crain
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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BORING-01-0-0.5 L1113484-01 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 14:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 15:45	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304163	1	06/25/19 14:40	07/01/19 16:43	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304160	1	06/25/19 14:40	07/01/19 15:38	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	20	07/01/19 08:43	07/01/19 19:42	TJD	Mt. Juliet, TN

BORING-02-0-0.5 L1113484-02 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 11:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 16:01	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	102	06/25/19 11:50	06/29/19 04:03	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	8.16	06/25/19 11:50	06/29/19 19:21	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	100	07/01/19 08:43	07/02/19 04:52	KME	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	20	07/01/19 08:43	07/01/19 21:47	KME	Mt. Juliet, TN

BORING-02-3.5-4 L1113484-03 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 12:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	5	06/28/19 12:35	06/28/19 16:10	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	250	06/25/19 12:10	06/29/19 07:07	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	20	06/25/19 12:10	06/29/19 19:40	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304160	80	06/25/19 12:10	07/01/19 15:59	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	10	07/01/19 08:43	07/01/19 22:02	KME	Mt. Juliet, TN

BORING-03-0-0.5 L1113484-04 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 12:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 16:18	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1	06/25/19 12:20	06/29/19 00:59	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1	06/25/19 12:20	06/29/19 16:35	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	5	07/01/19 08:43	07/02/19 03:25	KME	Mt. Juliet, TN

BORING-04-0-0.5 L1113484-05 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 12:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 16:27	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1.06	06/25/19 12:30	06/29/19 01:19	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1	06/25/19 12:30	06/29/19 16:53	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	20	07/01/19 08:43	07/01/19 22:46	TJD	Mt. Juliet, TN

BORING-05-0-0.5 L1113484-06 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 12:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 16:35	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1	06/25/19 12:40	06/29/19 01:40	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1	06/25/19 12:40	06/29/19 17:12	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	10	07/01/19 08:43	07/01/19 19:27	KME	Mt. Juliet, TN

BORING-06-0-0.5 L1113484-07 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 11:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 16:44	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	100	06/25/19 11:20	06/29/19 04:23	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	8	06/25/19 11:20	06/29/19 19:58	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	10	07/01/19 08:43	07/01/19 22:17	KME	Mt. Juliet, TN

BORING-06-3.5-4 L1113484-08 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 11:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 17:26	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	500	06/25/19 11:40	06/29/19 07:27	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	40	06/25/19 11:40	06/29/19 22:27	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	5	07/01/19 08:43	07/02/19 03:55	KME	Mt. Juliet, TN

BORING-07-0-0.5 L1113484-09 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 12:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303204	1	06/28/19 13:50	06/28/19 14:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 17:35	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1	06/25/19 12:50	06/29/19 02:00	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1	06/25/19 12:50	06/29/19 17:30	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	10	07/01/19 08:43	07/01/19 22:31	KME	Mt. Juliet, TN

BORING-08-0-0.5 L1113484-10 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 08:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 17:43	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1	06/25/19 08:30	06/29/19 02:21	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1.08	06/25/19 08:30	06/29/19 17:49	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	20	07/01/19 08:43	07/01/19 18:55	TJD	Mt. Juliet, TN

BORING-08-2-2.5 L1113484-11 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 08:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 17:52	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	200	06/25/19 08:40	06/29/19 06:05	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	20	06/25/19 08:40	06/29/19 20:17	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	1	07/01/19 08:43	07/01/19 16:04	KME	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	5	07/01/19 08:43	07/02/19 14:30	DMW	Mt. Juliet, TN

BORING-09-0-0.5 L1113484-12 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 13:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 18:00	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	117	06/25/19 13:00	06/29/19 04:44	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	9.36	06/25/19 13:00	06/29/19 20:35	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	100	07/01/19 08:43	07/02/19 04:24	KME	Mt. Juliet, TN

BORING-10-0-0.5 L1113484-13 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 08:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 18:09	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1.12	06/25/19 08:00	06/29/19 02:41	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1	06/25/19 08:00	06/29/19 18:08	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	10	07/01/19 08:43	07/01/19 18:40	KME	Mt. Juliet, TN

BORING-10-3.5-4 L1113484-14 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 08:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 18:17	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	200	06/25/19 08:20	06/29/19 06:26	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	20	06/25/19 08:20	06/29/19 20:54	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	1	07/01/19 08:43	07/01/19 16:35	TJD	Mt. Juliet, TN

BORING-11-0-0.5 L1113484-15 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 13:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 18:26	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1.01	06/25/19 13:10	06/29/19 03:01	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1	06/25/19 13:10	06/29/19 18:26	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	5	07/01/19 08:43	07/01/19 17:23	TJD	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

BORING-12-0-0.5 L1113484-16 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 09:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 18:51	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	120	06/25/19 09:00	06/29/19 05:04	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	9.6	06/25/19 09:00	06/29/19 21:12	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	25	07/01/19 08:43	07/02/19 04:09	KME	Mt. Juliet, TN

BORING-12-2-2.5 L1113484-17 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 09:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 19:00	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	100	06/25/19 09:10	06/29/19 05:25	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	8	06/25/19 09:10	06/29/19 21:31	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	1	07/01/19 08:43	07/01/19 16:19	TJD	Mt. Juliet, TN

BORING-13-0-0.5 L1113484-18 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 13:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 19:09	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	100	06/25/19 13:20	06/29/19 05:45	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	8	06/25/19 13:20	06/29/19 21:50	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	100	07/01/19 08:43	07/02/19 04:37	KME	Mt. Juliet, TN

BORING-14-0-0.5 L1113484-19 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 09:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303205	1	06/28/19 10:12	06/28/19 10:27	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 19:17	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	1.16	06/25/19 09:30	06/29/19 03:22	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	1	06/25/19 09:30	06/29/19 18:45	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	5	07/01/19 08:43	07/02/19 03:39	KME	Mt. Juliet, TN

BORING-14-2-2.5 L1113484-20 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 09:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303286	1	06/28/19 12:35	06/28/19 19:26	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1303742	250	06/25/19 09:40	06/29/19 06:46	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304010	20	06/25/19 09:40	06/29/19 22:08	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	25	07/01/19 08:43	07/02/19 14:46	DMW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304200	5	07/01/19 08:43	07/01/19 18:10	KME	Mt. Juliet, TN

BORING-15-0-0.5 L1113484-21 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 13:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 16:06	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304495	1.14	06/25/19 13:30	07/01/19 13:52	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1.16	06/25/19 13:30	06/29/19 18:36	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/02/19 17:26	FM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	20	07/02/19 06:20	07/03/19 19:43	TJD	Mt. Juliet, TN

BORING-16-0-0.5 L1113484-22 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 10:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 16:23	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	1.03	06/25/19 10:00	06/30/19 22:54	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1	06/25/19 10:00	06/29/19 18:56	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	25	07/02/19 06:20	07/03/19 19:56	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	5	07/02/19 06:20	07/02/19 14:17	FM	Mt. Juliet, TN

BORING-16-3.5-4 L1113484-23 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 10:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	5	06/29/19 10:22	06/29/19 16:32	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	250	06/25/19 10:20	06/30/19 23:15	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	20	06/25/19 10:20	06/29/19 21:20	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/03/19 17:59	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	5	07/02/19 06:20	07/02/19 14:57	FM	Mt. Juliet, TN

BORING-17-0-0.5 L1113484-24 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 13:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 16:40	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304495	50	06/25/19 13:40	07/01/19 14:13	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304967	8	06/25/19 13:40	07/02/19 12:30	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	100	07/02/19 06:20	07/03/19 21:25	TJD	Mt. Juliet, TN

BORING-18-0-0.5 L1113484-25 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 13:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 16:49	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	100	06/25/19 13:50	06/30/19 23:56	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304170	4	06/25/19 13:50	07/01/19 13:32	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	50	07/02/19 06:20	07/03/19 20:34	TJD	Mt. Juliet, TN

BORING-19-0-0.5 L1113484-26 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 15:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 16:57	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	1	06/25/19 15:00	07/01/19 00:17	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1	06/25/19 15:00	06/29/19 19:17	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/03/19 18:12	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	5	07/02/19 06:20	07/02/19 15:11	FM	Mt. Juliet, TN

BORING-19-2-2.5 L1113484-27 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 15:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	5	06/29/19 10:22	06/29/19 17:40	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304495	1000	06/25/19 15:10	07/01/19 14:33	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	20	06/25/19 15:10	06/29/19 22:21	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304170	200	06/25/19 15:10	07/01/19 14:53	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	50	07/02/19 06:20	07/03/19 20:21	TJD	Mt. Juliet, TN

BORING-20-0-0.5 L1113484-28 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 15:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 17:48	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304495	25	06/25/19 15:20	07/01/19 14:54	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304170	1	06/25/19 15:20	07/01/19 12:31	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/02/19 17:14	FM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	20	07/02/19 06:20	07/03/19 19:31	TJD	Mt. Juliet, TN

BORING-21-0-0.5 L1113484-29 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 15:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303206	1	06/28/19 09:57	06/28/19 10:10	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 17:57	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	1	06/25/19 15:30	07/01/19 01:34	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1	06/25/19 15:30	06/29/19 19:37	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	20	07/02/19 06:20	07/02/19 18:06	FM	Mt. Juliet, TN

BORING-22-0-0.5 L1113484-30 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 11:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 18:05	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	114	06/25/19 11:00	07/01/19 01:54	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	9.52	06/25/19 11:00	06/29/19 23:02	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/02/19 18:19	FM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	25	07/02/19 06:20	07/03/19 20:09	TJD	Mt. Juliet, TN

BORING-22-2-2.5 L1113484-31 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 11:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 18:14	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304495	2000	06/25/19 11:10	07/01/19 15:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	20	06/25/19 11:10	06/29/19 23:22	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	5	07/02/19 06:20	07/02/19 15:38	FM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	50	07/02/19 06:20	07/03/19 21:00	TJD	Mt. Juliet, TN

BORING-23-0-0.5 L1113484-32 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 13:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 18:22	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	100	06/25/19 13:50	07/01/19 02:35	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304170	4	06/25/19 13:50	07/01/19 14:12	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	200	07/02/19 06:20	07/03/19 21:12	TJD	Mt. Juliet, TN

BORING-24-0-0.5 L1113484-33 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 14:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 18:31	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	1	06/25/19 14:00	07/01/19 02:56	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1.06	06/25/19 14:00	06/29/19 19:58	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/02/19 17:00	FM	Mt. Juliet, TN

BORING-25-0-0.5 L1113484-34 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 14:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 18:40	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	100	06/25/19 14:10	07/01/19 03:16	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304170	1	06/25/19 14:10	07/01/19 12:51	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/03/19 18:39	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	5	07/02/19 06:20	07/02/19 15:52	FM	Mt. Juliet, TN

BORING-26-0-0.5 L1113484-35 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 14:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 19:05	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	100	06/25/19 14:20	07/01/19 03:37	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304170	1	06/25/19 14:20	07/01/19 13:12	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/03/19 18:52	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	5	07/02/19 06:20	07/02/19 16:06	FM	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

BORING-27-0-0.5 L1113484-36 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 10:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 19:14	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	1	06/25/19 10:30	07/01/19 03:57	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1	06/25/19 10:30	06/29/19 20:18	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	1	07/02/19 06:20	07/02/19 13:49	FM	Mt. Juliet, TN

BORING-27-3.5-4 L1113484-37 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 10:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 19:22	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	112	06/25/19 10:50	07/01/19 04:18	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	18.96	06/25/19 10:50	06/30/19 00:44	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	1	07/02/19 06:20	07/02/19 14:03	FM	Mt. Juliet, TN

BORING-28-0-0.5 L1113484-38 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 14:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 19:31	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	1	06/25/19 14:30	07/01/19 04:38	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1	06/25/19 14:30	06/29/19 20:39	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/02/19 16:47	FM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	20	07/02/19 06:20	07/03/19 19:05	TJD	Mt. Juliet, TN

DUP-01-0-0.5-6-25-19 L1113484-39 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 00:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303207	1	06/28/19 09:44	06/28/19 09:53	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303288	1	06/29/19 10:22	06/29/19 19:39	NJM	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	101	06/25/19 00:00	07/01/19 04:59	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304170	8.08	06/25/19 00:00	07/01/19 14:33	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/02/19 18:32	FM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	50	07/02/19 06:20	07/03/19 20:47	TJD	Mt. Juliet, TN

DUP-02-0-0.5-6-25-19 L1113484-40 Solid

Collected by: J. Stoffel | Collected date/time: 06/25/19 00:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303369	1	06/28/19 14:01	06/28/19 14:11	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303289	9.803922	06/29/19 07:48	06/29/19 11:37	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304175	1	06/25/19 00:00	07/01/19 05:19	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304043	1	06/25/19 00:00	06/29/19 20:59	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304201	10	07/02/19 06:20	07/02/19 16:20	FM	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

DUP-03-0-0.5-6-25-19 L1113484-41 Solid

Collected by: J. Stoffel
Collected date/time: 06/25/19 00:00
Received date/time: 06/27/19 08:00

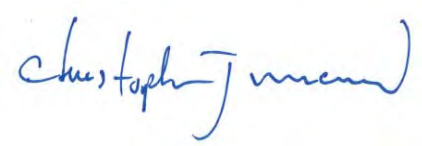
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303369	1	06/28/19 14:01	06/28/19 14:11	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303289	10	06/29/19 07:48	06/29/19 11:46	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304876	1	06/25/19 00:00	07/02/19 13:19	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304044	2	06/25/19 00:00	06/30/19 19:55	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304203	25	07/01/19 08:49	07/03/19 23:24	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304203	5	07/01/19 08:49	07/01/19 23:30	KME	Mt. Juliet, TN

DUP-04-0-0.5-6-25-19 L1113484-42 Solid

Collected by: J. Stoffel
Collected date/time: 06/25/19 00:00
Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1303369	1	06/28/19 14:01	06/28/19 14:11	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303289	9.920635	06/29/19 07:48	06/29/19 11:54	ELN	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1304637	100	06/25/19 00:00	07/01/19 16:42	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1304044	8	06/25/19 00:00	06/30/19 20:14	DWR	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304203	25	07/01/19 08:49	07/03/19 23:38	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1304203	5	07/01/19 08:49	07/01/19 23:43	KME	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

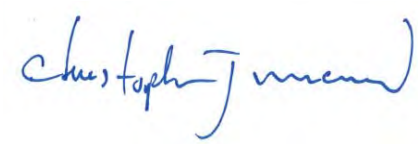
b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 07/04/2019 22:04
Project Name: HFNR - Tank 106 Release-Artesia	Laboratory Job Number: L1113484-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41 and 42
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303286, WG1303207, WG1303206, WG1303205, WG1303204, WG1303369, WG1303289, WG1304010, WG1303742, WG1304043, WG1303288, WG1304175, WG1304044, WG1304170, WG1304495, WG1304160, WG1304163, WG1304203, WG1304200, WG1304637, WG1304967, WG1304876 and WG1304201

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?	X				
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			2
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?		X			3
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			4
		Were MS/MSD RPDs within laboratory QC limits?		X			5
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 07/04/2019 22:04
Project Name: HFNR - Tank 106 Release-Artesia	Laboratory Job Number: L1113484-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41 and 42
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303286, WG1303207, WG1303206, WG1303205, WG1303204, WG1303369, WG1303289, WG1304010, WG1303742, WG1304043, WG1303288, WG1304175, WG1304044, WG1304170, WG1304495, WG1304160, WG1304163, WG1304203, WG1304200, WG1304637, WG1304967, WG1304876 and WG1304201

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 07/04/2019 22:04
Project Name: HFNR - Tank 106 Release-Artesia	Laboratory Job Number: L1113484-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41 and 42
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303286, WG1303207, WG1303206, WG1303205, WG1303204, WG1303369, WG1303289, WG1304010, WG1303742, WG1304043, WG1303288, WG1304175, WG1304044, WG1304170, WG1304495, WG1304160, WG1304163, WG1304203, WG1304200, WG1304637, WG1304967, WG1304876 and WG1304201

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 07/04/2019 22:04
Project Name: HFNR - Tank 106 Release-Artesia	Laboratory Job Number: L1113484-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41 and 42
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303286, WG1303207, WG1303206, WG1303205, WG1303204, WG1303369, WG1303289, WG1304010, WG1303742, WG1304043, WG1303288, WG1304175, WG1304044, WG1304170, WG1304495, WG1304160, WG1304163, WG1304203, WG1304200, WG1304637, WG1304967, WG1304876 and WG1304201

ER #[1]	Description
1	WG1304010 R3426134-3 and 4: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
2	8015 WG1304200 o-Terphenyl L1113484-01, 02, 03, 05, 07, 08, 09, 10, 12, 13, 16, 18 and 20: Percent Recovery is outside of established control limits. 8015 WG1304201 o-Terphenyl L1113484-21, 22, 24, 25, 27, 28, 29, 30, 31, 32, 35, 38, 39 and 40: Percent Recovery is outside of established control limits. 8015 WG1304203 o-Terphenyl L1113484-41 and 42: Percent Recovery is outside of established control limits.
3	8260B WG1304043 Total Xylenes L1113484-21, 26, 29, 30, 33, 36, 37 and 38: Concentration in the Blank >MQL.
4	8015 WG1304201 C10-C28 Diesel Range: Percent Recovery is outside of established control limits. 8015 WG1304203 C10-C28 Diesel Range: Percent Recovery is outside of established control limits. 8260B WG1304010 Benzene, Ethylbenzene, Xylenes, Total: Percent Recovery is outside of established control limits. 300.0 WG1303289 Chloride: Percent Recovery is outside of established control limits. 8260B WG1304010 Toluene: Percent Recovery is outside of established control limits.
5	8015 WG1304201 C10-C28 Diesel Range: Relative Percent Difference is outside of established control limits.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.1		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	169		0.913	10.0	11.5	1	06/28/2019 15:45	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.281		0.0249	0.100	0.115	1	07/01/2019 16:43	WG1304163
(S) a,a,a-Trifluorotoluene(FID)	*85.6*				*77.0-120*		*07/01/2019 16:43*	WG1304163

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00192		0.000459	0.00100	0.00115	1	07/01/2019 15:38	WG1304160
Toluene	0.00468	J	0.00144	0.00500	0.00574	1	07/01/2019 15:38	WG1304160
Ethylbenzene	0.00799		0.000609	0.00250	0.00287	1	07/01/2019 15:38	WG1304160
Total Xylenes	0.0126		0.00549	0.00650	0.00746	1	07/01/2019 15:38	WG1304160
(S) Toluene-d8	*103*				*75.0-131*		*07/01/2019 15:38*	WG1304160
(S) 4-Bromofluorobenzene	*104*				*67.0-138*		*07/01/2019 15:38*	WG1304160
(S) 1,2-Dichloroethane-d4	*94.3*				*70.0-130*		*07/01/2019 15:38*	WG1304160

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	2140		37.0	4.00	91.9	20	07/01/2019 19:42	WG1304200
C28-C40 Oil Range	2000		6.29	4.00	91.9	20	07/01/2019 19:42	WG1304200
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/01/2019 19:42*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.8		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	145		1.01	10.0	12.7	1	06/28/2019 16:01	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	422		2.81	0.100	12.9	102	06/29/2019 04:03	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*98.0*				*77.0-120*		*06/29/2019 04:03*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.249		0.00414	0.00100	0.0104	8.16	06/29/2019 19:21	WG1304010
Toluene	0.0348	J	0.0129	0.00500	0.0518	8.16	06/29/2019 19:21	WG1304010
Ethylbenzene	0.396		0.00549	0.00250	0.0259	8.16	06/29/2019 19:21	WG1304010
Total Xylenes	0.554		0.0495	0.00650	0.0673	8.16	06/29/2019 19:21	WG1304010
(S) Toluene-d8	*100*				*75.0-131*		*06/29/2019 19:21*	WG1304010
(S) 4-Bromofluorobenzene	*117*				*67.0-138*		*06/29/2019 19:21*	WG1304010
(S) 1,2-Dichloroethane-d4	*93.8*				*70.0-130*		*06/29/2019 19:21*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	7250		40.9	4.00	102	20	07/01/2019 21:47	WG1304200
C28-C40 Oil Range	4140		34.8	4.00	508	100	07/02/2019 04:52	WG1304200
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/02/2019 04:52*	WG1304200
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/01/2019 21:47*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.5		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1360		5.06	10.0	63.7	5	06/28/2019 16:10	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	2310		6.91	0.100	31.8	250	06/29/2019 07:07	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*105*				*77.0-120*		*06/29/2019 07:07*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	36.3	V	0.0102	0.00100	0.0255	20	06/29/2019 19:40	WG1304010
Toluene	7.87	J6	0.0318	0.00500	0.127	20	06/29/2019 19:40	WG1304010
Ethylbenzene	48.6		0.0540	0.00250	0.255	80	07/01/2019 15:59	WG1304160
Total Xylenes	51.4	V	0.122	0.00650	0.166	20	06/29/2019 19:40	WG1304010
(S) Toluene-d8	*108*				*75.0-131*		*06/29/2019 19:40*	WG1304010
(S) Toluene-d8	*102*				*75.0-131*		*07/01/2019 15:59*	WG1304160
(S) 4-Bromofluorobenzene	*89.9*				*67.0-138*		*06/29/2019 19:40*	WG1304010
(S) 4-Bromofluorobenzene	*102*				*67.0-138*		*07/01/2019 15:59*	WG1304160
(S) 1,2-Dichloroethane-d4	*83.0*				*70.0-130*		*06/29/2019 19:40*	WG1304010
(S) 1,2-Dichloroethane-d4	*95.9*				*70.0-130*		*07/01/2019 15:59*	WG1304160

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1600		20.5	4.00	50.9	10	07/01/2019 22:02	WG1304200
C28-C40 Oil Range	980		3.49	4.00	50.9	10	07/01/2019 22:02	WG1304200
(S) o-Terphenyl	*252*	J1			*18.0-148*		*07/01/2019 22:02*	WG1304200

Sample Narrative:

L1113484-03 WG1304200: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.3		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	182		0.862	10.0	10.8	1	06/28/2019 16:18	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.141		0.0235	0.100	0.108	1	06/29/2019 00:59	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*97.3*				*77.0-120*		*06/29/2019 00:59*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00180		0.000433	0.00100	0.00108	1	06/29/2019 16:35	WG1304010
Toluene	0.00180	J	0.00135	0.00500	0.00542	1	06/29/2019 16:35	WG1304010
Ethylbenzene	0.00314		0.000574	0.00250	0.00271	1	06/29/2019 16:35	WG1304010
Total Xylenes	U		0.00518	0.00650	0.00704	1	06/29/2019 16:35	WG1304010
(S) Toluene-d8	*108*				*75.0-131*		*06/29/2019 16:35*	WG1304010
(S) 4-Bromofluorobenzene	*110*				*67.0-138*		*06/29/2019 16:35*	WG1304010
(S) 1,2-Dichloroethane-d4	*83.6*				*70.0-130*		*06/29/2019 16:35*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	66.8		8.72	4.00	21.7	5	07/02/2019 03:25	WG1304200
C28-C40 Oil Range	145		1.48	4.00	21.7	5	07/02/2019 03:25	WG1304200
(S) o-Terphenyl	*90.7*				*18.0-148*		*07/02/2019 03:25*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.5		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	804		0.842	10.0	10.6	1	06/28/2019 16:27	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	1.78		0.0243	0.100	0.112	1.06	06/29/2019 01:19	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*88.4*				*77.0-120*		*06/29/2019 01:19*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00190		0.000423	0.00100	0.00106	1	06/29/2019 16:53	WG1304010
Toluene	0.00729		0.00132	0.00500	0.00529	1	06/29/2019 16:53	WG1304010
Ethylbenzene	0.00802		0.000561	0.00250	0.00265	1	06/29/2019 16:53	WG1304010
Total Xylenes	0.0182		0.00506	0.00650	0.00688	1	06/29/2019 16:53	WG1304010
(S) Toluene-d8	*101*				*75.0-131*		*06/29/2019 16:53*	WG1304010
(S) 4-Bromofluorobenzene	*130*				*67.0-138*		*06/29/2019 16:53*	WG1304010
(S) 1,2-Dichloroethane-d4	*85.8*				*70.0-130*		*06/29/2019 16:53*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	6560		34.1	4.00	84.7	20	07/01/2019 22:46	WG1304200
C28-C40 Oil Range	3270		5.80	4.00	84.7	20	07/01/2019 22:46	WG1304200
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/01/2019 22:46*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.9		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	126		0.959	10.0	12.1	1	06/28/2019 16:35	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.192		0.0262	0.100	0.121	1	06/29/2019 01:40	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*90.8*				*77.0-120*		*06/29/2019 01:40*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00175		0.000482	0.00100	0.00121	1	06/29/2019 17:12	WG1304010
Toluene	0.00423	J	0.00151	0.00500	0.00603	1	06/29/2019 17:12	WG1304010
Ethylbenzene	0.00336		0.000639	0.00250	0.00301	1	06/29/2019 17:12	WG1304010
Total Xylenes	0.00608	J	0.00576	0.00650	0.00784	1	06/29/2019 17:12	WG1304010
(S) Toluene-d8	*102*				*75.0-131*		*06/29/2019 17:12*	WG1304010
(S) 4-Bromofluorobenzene	*111*				*67.0-138*		*06/29/2019 17:12*	WG1304010
(S) 1,2-Dichloroethane-d4	*89.0*				*70.0-130*		*06/29/2019 17:12*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	951		19.4	4.00	48.2	10	07/01/2019 19:27	WG1304200
C28-C40 Oil Range	842		3.30	4.00	48.2	10	07/01/2019 19:27	WG1304200
(S) o-Terphenyl	*144*				*18.0-148*		*07/01/2019 19:27*	WG1304200

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.0		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	133		0.936	10.0	11.8	1	06/28/2019 16:44	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	56.8		2.55	0.100	11.8	100	06/29/2019 04:23	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*101*				*77.0-120*		*06/29/2019 04:23*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.217		0.00376	0.00100	0.00941	8	06/29/2019 19:58	WG1304010
Toluene	0.598		0.0118	0.00500	0.0471	8	06/29/2019 19:58	WG1304010
Ethylbenzene	0.692		0.00499	0.00250	0.0235	8	06/29/2019 19:58	WG1304010
Total Xylenes	4.25		0.0450	0.00650	0.0612	8	06/29/2019 19:58	WG1304010
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 19:58*	WG1304010
(S) 4-Bromofluorobenzene	*112*				*67.0-138*		*06/29/2019 19:58*	WG1304010
(S) 1,2-Dichloroethane-d4	*90.1*				*70.0-130*		*06/29/2019 19:58*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1390		18.9	4.00	47.1	10	07/01/2019 22:17	WG1304200
C28-C40 Oil Range	821		3.22	4.00	47.1	10	07/01/2019 22:17	WG1304200
(S) o-Terphenyl	*252*	J1			*18.0-148*		*07/01/2019 22:17*	WG1304200

Sample Narrative:

L1113484-07 WG1304200: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.4		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	560		1.01	10.0	12.7	1	06/28/2019 17:26	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	2760		13.8	0.100	63.7	500	06/29/2019 07:27	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*98.8*				*77.0-120*		*06/29/2019 07:27*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	10.2		0.0204	0.00100	0.0510	40	06/29/2019 22:27	WG1304010
Toluene	36.6		0.0637	0.00500	0.255	40	06/29/2019 22:27	WG1304010
Ethylbenzene	30.9		0.0270	0.00250	0.127	40	06/29/2019 22:27	WG1304010
Total Xylenes	153		0.244	0.00650	0.331	40	06/29/2019 22:27	WG1304010
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 22:27*	WG1304010
(S) 4-Bromofluorobenzene	*114*				*67.0-138*		*06/29/2019 22:27*	WG1304010
(S) 1,2-Dichloroethane-d4	*93.7*				*70.0-130*		*06/29/2019 22:27*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	855		10.3	4.00	25.5	5	07/02/2019 03:55	WG1304200
C28-C40 Oil Range	191		1.75	4.00	25.5	5	07/02/2019 03:55	WG1304200
(S) o-Terphenyl	*152*	J1			*18.0-148*		*07/02/2019 03:55*	WG1304200

Sample Narrative:

L1113484-08 WG1304200: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.8		1	06/28/2019 14:00	WG1303204

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	144		0.926	10.0	11.7	1	06/28/2019 17:35	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	3.04		0.0253	0.100	0.117	1	06/29/2019 02:00	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*91.3*				*77.0-120*		*06/29/2019 02:00*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00306		0.000466	0.00100	0.00117	1	06/29/2019 17:30	WG1304010
Toluene	0.0113		0.00146	0.00500	0.00583	1	06/29/2019 17:30	WG1304010
Ethylbenzene	0.0660		0.000617	0.00250	0.00291	1	06/29/2019 17:30	WG1304010
Total Xylenes	0.559		0.00557	0.00650	0.00757	1	06/29/2019 17:30	WG1304010
(S) Toluene-d8	*102*				*75.0-131*		*06/29/2019 17:30*	WG1304010
(S) 4-Bromofluorobenzene	*118*				*67.0-138*		*06/29/2019 17:30*	WG1304010
(S) 1,2-Dichloroethane-d4	*89.3*				*70.0-130*		*06/29/2019 17:30*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1650		18.8	4.00	46.6	10	07/01/2019 22:31	WG1304200
C28-C40 Oil Range	739		3.19	4.00	46.6	10	07/01/2019 22:31	WG1304200
(S) o-Terphenyl	*241*	J1			*18.0-148*		*07/01/2019 22:31*	WG1304200

Sample Narrative:

L1113484-09 WG1304200: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.4		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	195		0.910	10.0	11.4	1	06/28/2019 17:43	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	5.50		0.0248	0.100	0.114	1	06/29/2019 02:21	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*78.6*				*77.0-120*		*06/29/2019 02:21*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.119		0.000494	0.00100	0.00124	1.08	06/29/2019 17:49	WG1304010
Toluene	0.293		0.00154	0.00500	0.00618	1.08	06/29/2019 17:49	WG1304010
Ethylbenzene	0.581		0.000655	0.00250	0.00309	1.08	06/29/2019 17:49	WG1304010
Total Xylenes	2.49		0.00591	0.00650	0.00803	1.08	06/29/2019 17:49	WG1304010
(S) Toluene-d8	*106*				*75.0-131*		*06/29/2019 17:49*	WG1304010
(S) 4-Bromofluorobenzene	*116*				*67.0-138*		*06/29/2019 17:49*	WG1304010
(S) 1,2-Dichloroethane-d4	*89.8*				*70.0-130*		*06/29/2019 17:49*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	3850		36.8	4.00	91.5	20	07/01/2019 18:55	WG1304200
C28-C40 Oil Range	2600		6.27	4.00	91.5	20	07/01/2019 18:55	WG1304200
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/01/2019 18:55*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.8		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	335		0.972	10.0	12.2	1	06/28/2019 17:52	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	1670		5.30	0.100	24.4	200	06/29/2019 06:05	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*96.4*				*77.0-120*		*06/29/2019 06:05*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.429		0.00978	0.00100	0.0244	20	06/29/2019 20:17	WG1304010
Toluene	0.564		0.0306	0.00500	0.122	20	06/29/2019 20:17	WG1304010
Ethylbenzene	17.0		0.0130	0.00250	0.0611	20	06/29/2019 20:17	WG1304010
Total Xylenes	45.7		0.117	0.00650	0.159	20	06/29/2019 20:17	WG1304010
(S) Toluene-d8	*106*				*75.0-131*		*06/29/2019 20:17*	WG1304010
(S) 4-Bromofluorobenzene	*116*				*67.0-138*		*06/29/2019 20:17*	WG1304010
(S) 1,2-Dichloroethane-d4	*92.5*				*70.0-130*		*06/29/2019 20:17*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	474		9.84	4.00	24.4	5	07/02/2019 14:30	WG1304200
C28-C40 Oil Range	7.41		0.335	4.00	4.89	1	07/01/2019 16:04	WG1304200
(S) o-Terphenyl	*56.4*				*18.0-148*		*07/01/2019 16:04*	WG1304200
(S) o-Terphenyl	*62.9*				*18.0-148*		*07/02/2019 14:30*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.5		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	218		0.879	10.0	11.1	1	06/28/2019 18:00	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	62.5		2.81	0.100	12.9	117	06/29/2019 04:44	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*101*				*77.0-120*		*06/29/2019 04:44*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0149		0.00414	0.00100	0.0103	9.36	06/29/2019 20:35	WG1304010
Toluene	0.0346	J	0.0129	0.00500	0.0517	9.36	06/29/2019 20:35	WG1304010
Ethylbenzene	0.0426		0.00548	0.00250	0.0259	9.36	06/29/2019 20:35	WG1304010
Total Xylenes	0.179		0.0495	0.00650	0.0673	9.36	06/29/2019 20:35	WG1304010
(S) Toluene-d8	*104*				*75.0-131*		*06/29/2019 20:35*	WG1304010
(S) 4-Bromofluorobenzene	*118*				*67.0-138*		*06/29/2019 20:35*	WG1304010
(S) 1,2-Dichloroethane-d4	*93.4*				*70.0-130*		*06/29/2019 20:35*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	11200		178	4.00	442	100	07/02/2019 04:24	WG1304200
C28-C40 Oil Range	5410		30.3	4.00	442	100	07/02/2019 04:24	WG1304200
(S) o-Terphenyl	*1450*	J7			*18.0-148*		*07/02/2019 04:24*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.8		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	132		0.927	10.0	11.7	1	06/28/2019 18:09	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.967		0.0283	0.100	0.131	1.12	06/29/2019 02:41	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*87.8*				*77.0-120*		*06/29/2019 02:41*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00655		0.000466	0.00100	0.00117	1	06/29/2019 18:08	WG1304010
Toluene	0.00393	J	0.00146	0.00500	0.00583	1	06/29/2019 18:08	WG1304010
Ethylbenzene	0.0247		0.000618	0.00250	0.00291	1	06/29/2019 18:08	WG1304010
Total Xylenes	0.109		0.00557	0.00650	0.00757	1	06/29/2019 18:08	WG1304010
(S) Toluene-d8	*100*				*75.0-131*		*06/29/2019 18:08*	WG1304010
(S) 4-Bromofluorobenzene	*116*				*67.0-138*		*06/29/2019 18:08*	WG1304010
(S) 1,2-Dichloroethane-d4	*92.7*				*70.0-130*		*06/29/2019 18:08*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	2180		18.8	4.00	46.6	10	07/01/2019 18:40	WG1304200
C28-C40 Oil Range	1160		3.19	4.00	46.6	10	07/01/2019 18:40	WG1304200
(S) o-Terphenyl	*391*	J1			*18.0-148*		*07/01/2019 18:40*	WG1304200

Sample Narrative:

L1113484-13 WG1304200: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.9		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	342		0.995	10.0	12.5	1	06/28/2019 18:17	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	688		5.43	0.100	25.0	200	06/29/2019 06:26	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*91.3*				*77.0-120*		*06/29/2019 06:26*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.551		0.0100	0.00100	0.0250	20	06/29/2019 20:54	WG1304010
Toluene	0.160		0.0313	0.00500	0.125	20	06/29/2019 20:54	WG1304010
Ethylbenzene	3.51		0.0133	0.00250	0.0626	20	06/29/2019 20:54	WG1304010
Total Xylenes	1.87		0.120	0.00650	0.163	20	06/29/2019 20:54	WG1304010
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 20:54*	WG1304010
(S) 4-Bromofluorobenzene	*123*				*67.0-138*		*06/29/2019 20:54*	WG1304010
(S) 1,2-Dichloroethane-d4	*83.0*				*70.0-130*		*06/29/2019 20:54*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	398		2.02	4.00	5.01	1	07/01/2019 16:35	WG1304200
C28-C40 Oil Range	116		0.343	4.00	5.01	1	07/01/2019 16:35	WG1304200
(S) o-Terphenyl	*87.2*				*18.0-148*		*07/01/2019 16:35*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.6		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	182		0.929	10.0	11.7	1	06/28/2019 18:26	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.185		0.0256	0.100	0.118	1.01	06/29/2019 03:01	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*97.0*				*77.0-120*		*06/29/2019 03:01*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0218		0.000467	0.00100	0.00117	1	06/29/2019 18:26	WG1304010
Toluene	0.0291		0.00146	0.00500	0.00584	1	06/29/2019 18:26	WG1304010
Ethylbenzene	0.0123		0.000619	0.00250	0.00292	1	06/29/2019 18:26	WG1304010
Total Xylenes	0.0712		0.00558	0.00650	0.00759	1	06/29/2019 18:26	WG1304010
(S) Toluene-d8	*102*				*75.0-131*		*06/29/2019 18:26*	WG1304010
(S) 4-Bromofluorobenzene	*109*				*67.0-138*		*06/29/2019 18:26*	WG1304010
(S) 1,2-Dichloroethane-d4	*89.7*				*70.0-130*		*06/29/2019 18:26*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	69.6		9.40	4.00	23.4	5	07/01/2019 17:23	WG1304200
C28-C40 Oil Range	206		1.60	4.00	23.4	5	07/01/2019 17:23	WG1304200
(S) o-Terphenyl	*64.4*				*18.0-148*		*07/01/2019 17:23*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	95.3		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	118		0.834	10.0	10.5	1	06/28/2019 18:51	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	312		2.73	0.100	12.6	120	06/29/2019 05:04	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*100*				*77.0-120*		*06/29/2019 05:04*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.466		0.00403	0.00100	0.0101	9.6	06/29/2019 21:12	WG1304010
Toluene	0.408		0.0126	0.00500	0.0504	9.6	06/29/2019 21:12	WG1304010
Ethylbenzene	2.08		0.00534	0.00250	0.0252	9.6	06/29/2019 21:12	WG1304010
Total Xylenes	5.09		0.0481	0.00650	0.0655	9.6	06/29/2019 21:12	WG1304010
(S) Toluene-d8	*109*				*75.0-131*		*06/29/2019 21:12*	WG1304010
(S) 4-Bromofluorobenzene	*123*				*67.0-138*		*06/29/2019 21:12*	WG1304010
(S) 1,2-Dichloroethane-d4	*93.9*				*70.0-130*		*06/29/2019 21:12*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	4080		42.2	4.00	105	25	07/02/2019 04:09	WG1304200
C28-C40 Oil Range	1800		7.19	4.00	105	25	07/02/2019 04:09	WG1304200
(S) o-Terphenyl	*586*	J7			*18.0-148*		*07/02/2019 04:09*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.1		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	682		0.981	10.0	12.3	1	06/28/2019 19:00	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	38.6		2.68	0.100	12.3	100	06/29/2019 05:25	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*101*				*77.0-120*		*06/29/2019 05:25*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0401		0.00395	0.00100	0.00987	8	06/29/2019 21:31	WG1304010
Toluene	0.0240	J	0.0123	0.00500	0.0493	8	06/29/2019 21:31	WG1304010
Ethylbenzene	0.129		0.00523	0.00250	0.0247	8	06/29/2019 21:31	WG1304010
Total Xylenes	0.349		0.0472	0.00650	0.0641	8	06/29/2019 21:31	WG1304010
(S) Toluene-d8	*101*				*75.0-131*		*06/29/2019 21:31*	WG1304010
(S) 4-Bromofluorobenzene	*112*				*67.0-138*		*06/29/2019 21:31*	WG1304010
(S) 1,2-Dichloroethane-d4	*95.4*				*70.0-130*		*06/29/2019 21:31*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	54.9		1.99	4.00	4.93	1	07/01/2019 16:19	WG1304200
C28-C40 Oil Range	37.4		0.338	4.00	4.93	1	07/01/2019 16:19	WG1304200
(S) o-Terphenyl	*48.0*				*18.0-148*		*07/01/2019 16:19*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.0		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	159		0.914	10.0	11.5	1	06/28/2019 19:09	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	36.7		2.49	0.100	11.5	100	06/29/2019 05:45	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*101*				*77.0-120*		*06/29/2019 05:45*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00927		0.00368	0.00100	0.00919	8	06/29/2019 21:50	WG1304010
Toluene	0.0223	J	0.0115	0.00500	0.0460	8	06/29/2019 21:50	WG1304010
Ethylbenzene	0.0405		0.00487	0.00250	0.0230	8	06/29/2019 21:50	WG1304010
Total Xylenes	0.353		0.0439	0.00650	0.0598	8	06/29/2019 21:50	WG1304010
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 21:50*	WG1304010
(S) 4-Bromofluorobenzene	*117*				*67.0-138*		*06/29/2019 21:50*	WG1304010
(S) 1,2-Dichloroethane-d4	*90.6*				*70.0-130*		*06/29/2019 21:50*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	11300		185	4.00	460	100	07/02/2019 04:37	WG1304200
C28-C40 Oil Range	6640		31.5	4.00	460	100	07/02/2019 04:37	WG1304200
(S) o-Terphenyl	*1720*	J7			*18.0-148*		*07/02/2019 04:37*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.9		1	06/28/2019 10:27	WG1303205

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	555		0.936	10.0	11.8	1	06/28/2019 19:17	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	12.8		0.0296	0.100	0.137	1.16	06/29/2019 03:22	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*102*				*77.0-120*		*06/29/2019 03:22*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0576		0.000471	0.00100	0.00118	1	06/29/2019 18:45	WG1304010
Toluene	0.0276		0.00147	0.00500	0.00589	1	06/29/2019 18:45	WG1304010
Ethylbenzene	0.0981		0.000624	0.00250	0.00294	1	06/29/2019 18:45	WG1304010
Total Xylenes	0.174		0.00563	0.00650	0.00765	1	06/29/2019 18:45	WG1304010
(S) Toluene-d8	*104*				*75.0-131*		*06/29/2019 18:45*	WG1304010
(S) 4-Bromofluorobenzene	*114*				*67.0-138*		*06/29/2019 18:45*	WG1304010
(S) 1,2-Dichloroethane-d4	*89.1*				*70.0-130*		*06/29/2019 18:45*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	160		9.48	4.00	23.5	5	07/02/2019 03:39	WG1304200
C28-C40 Oil Range	192		1.61	4.00	23.5	5	07/02/2019 03:39	WG1304200
(S) o-Terphenyl	*83.1*				*18.0-148*		*07/02/2019 03:39*	WG1304200

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.9		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	554		0.983	10.0	12.4	1	06/28/2019 19:26	WG1303286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	1580		6.71	0.100	30.9	250	06/29/2019 06:46	WG1303742
(S) a,a,a-Trifluorotoluene(FID)	*93.1*				*77.0-120*		*06/29/2019 06:46*	WG1303742

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	3.11		0.00989	0.00100	0.0247	20	06/29/2019 22:08	WG1304010
Toluene	2.36		0.0309	0.00500	0.124	20	06/29/2019 22:08	WG1304010
Ethylbenzene	24.1		0.0131	0.00250	0.0618	20	06/29/2019 22:08	WG1304010
Total Xylenes	36.0		0.118	0.00650	0.161	20	06/29/2019 22:08	WG1304010
(S) Toluene-d8	*106*				*75.0-131*		*06/29/2019 22:08*	WG1304010
(S) 4-Bromofluorobenzene	*90.9*				*67.0-138*		*06/29/2019 22:08*	WG1304010
(S) 1,2-Dichloroethane-d4	*97.0*				*70.0-130*		*06/29/2019 22:08*	WG1304010

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	2360		49.8	4.00	124	25	07/02/2019 14:46	WG1304200
C28-C40 Oil Range	587		1.69	4.00	24.7	5	07/01/2019 18:10	WG1304200
(S) o-Terphenyl	*270*	J1			*18.0-148*		*07/01/2019 18:10*	WG1304200
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/02/2019 14:46*	WG1304200

Sample Narrative:

L1113484-20 WG1304200: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.5		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	540		0.878	10.0	11.0	1	06/29/2019 16:06	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.571		0.0273	0.100	0.126	1.14	07/01/2019 13:52	WG1304495
(S) a,a,a-Trifluorotoluene(FID)	*90.9*				*77.0-120*		*07/01/2019 13:52*	WG1304495

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00456	B	0.000513	0.00100	0.00128	1.16	06/29/2019 18:36	WG1304043
Toluene	0.0117		0.00160	0.00500	0.00641	1.16	06/29/2019 18:36	WG1304043
Ethylbenzene	0.0107	B	0.000679	0.00250	0.00320	1.16	06/29/2019 18:36	WG1304043
Total Xylenes	0.0531	B	0.00613	0.00650	0.00833	1.16	06/29/2019 18:36	WG1304043
(S) Toluene-d8	*102*				*75.0-131*		*06/29/2019 18:36*	WG1304043
(S) 4-Bromofluorobenzene	*110*				*67.0-138*		*06/29/2019 18:36*	WG1304043
(S) 1,2-Dichloroethane-d4	*105*				*70.0-130*		*06/29/2019 18:36*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	914		17.8	4.00	44.2	10	07/02/2019 17:26	WG1304201
C28-C40 Oil Range	1170		6.05	4.00	88.4	20	07/03/2019 19:43	WG1304201
(S) o-Terphenyl	*46.6*				*18.0-148*		*07/02/2019 17:26*	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 19:43*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.0		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	677		0.969	10.0	12.2	1	06/29/2019 16:23	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	1.17		0.0272	0.100	0.126	1.03	06/30/2019 22:54	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*91.1*				*77.0-120*		*06/30/2019 22:54*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0383		0.000488	0.00100	0.00122	1	06/29/2019 18:56	WG1304043
Toluene	0.0606		0.00152	0.00500	0.00609	1	06/29/2019 18:56	WG1304043
Ethylbenzene	0.148		0.000646	0.00250	0.00305	1	06/29/2019 18:56	WG1304043
Total Xylenes	0.490		0.00583	0.00650	0.00792	1	06/29/2019 18:56	WG1304043
(S) Toluene-d8	*104*				*75.0-131*		*06/29/2019 18:56*	WG1304043
(S) 4-Bromofluorobenzene	*107*				*67.0-138*		*06/29/2019 18:56*	WG1304043
(S) 1,2-Dichloroethane-d4	*101*				*70.0-130*		*06/29/2019 18:56*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	373	J3 V	9.81	4.00	24.4	5	07/02/2019 14:17	WG1304201
C28-C40 Oil Range	1130		8.35	4.00	122	25	07/03/2019 19:56	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 19:56*	WG1304201
(S) o-Terphenyl	*49.4*				*18.0-148*		*07/02/2019 14:17*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.1		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	2410		4.90	10.0	61.7	5	06/29/2019 16:32	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	2050		6.69	0.100	30.8	250	06/30/2019 23:15	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*105*				*77.0-120*		*06/30/2019 23:15*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	1.40		0.00987	0.00100	0.0247	20	06/29/2019 21:20	WG1304043
Toluene	5.99		0.0308	0.00500	0.123	20	06/29/2019 21:20	WG1304043
Ethylbenzene	11.6		0.0131	0.00250	0.0617	20	06/29/2019 21:20	WG1304043
Total Xylenes	39.7		0.118	0.00650	0.160	20	06/29/2019 21:20	WG1304043
(S) Toluene-d8	*105*				*75.0-131*		*06/29/2019 21:20*	WG1304043
(S) 4-Bromofluorobenzene	*109*				*67.0-138*		*06/29/2019 21:20*	WG1304043
(S) 1,2-Dichloroethane-d4	*90.1*				*70.0-130*		*06/29/2019 21:20*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	929		9.93	4.00	24.7	5	07/02/2019 14:57	WG1304201
C28-C40 Oil Range	537		3.38	4.00	49.3	10	07/03/2019 17:59	WG1304201
(S) o-Terphenyl	*37.4*				*18.0-148*		*07/02/2019 14:57*	WG1304201
(S) o-Terphenyl	*42.4*				*18.0-148*		*07/03/2019 17:59*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.4		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	498		0.860	10.0	10.8	1	06/29/2019 16:40	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	40.7		1.17	0.100	5.41	50	07/01/2019 14:13	WG1304495
(S) a,a,a-Trifluorotoluene(FID)	*101*				*77.0-120*		*07/01/2019 14:13*	WG1304495

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00484	J	0.00346	0.00100	0.00865	8	07/02/2019 12:30	WG1304967
Toluene	0.0165	J	0.0108	0.00500	0.0433	8	07/02/2019 12:30	WG1304967
Ethylbenzene	0.0380		0.00459	0.00250	0.0216	8	07/02/2019 12:30	WG1304967
Total Xylenes	0.255		0.0414	0.00650	0.0562	8	07/02/2019 12:30	WG1304967
(S) Toluene-d8	*102*				*75.0-131*		*07/02/2019 12:30*	WG1304967
(S) 4-Bromofluorobenzene	*85.2*				*67.0-138*		*07/02/2019 12:30*	WG1304967
(S) 1,2-Dichloroethane-d4	*94.3*				*70.0-130*		*07/02/2019 12:30*	WG1304967

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	4970		174	4.00	433	100	07/03/2019 21:25	WG1304201
C28-C40 Oil Range	4100		29.6	4.00	433	100	07/03/2019 21:25	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 21:25*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.9		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	480		1.01	10.0	12.7	1	06/29/2019 16:49	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	53.5		2.75	0.100	12.7	100	06/30/2019 23:56	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*94.0*				*77.0-120*		*06/30/2019 23:56*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.00203	0.00100	0.00507	4	07/01/2019 13:32	WG1304170
Toluene	0.0146	J	0.00634	0.00500	0.0253	4	07/01/2019 13:32	WG1304170
Ethylbenzene	0.132		0.00269	0.00250	0.0127	4	07/01/2019 13:32	WG1304170
Total Xylenes	0.920		0.0242	0.00650	0.0330	4	07/01/2019 13:32	WG1304170
(S) Toluene-d8	*102*				*75.0-131*		*07/01/2019 13:32*	WG1304170
(S) 4-Bromofluorobenzene	*119*				*67.0-138*		*07/01/2019 13:32*	WG1304170
(S) 1,2-Dichloroethane-d4	*104*				*70.0-130*		*07/01/2019 13:32*	WG1304170

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	4170		102	4.00	253	50	07/03/2019 20:34	WG1304201
C28-C40 Oil Range	3700		17.4	4.00	253	50	07/03/2019 20:34	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 20:34*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.2		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	290		0.945	10.0	11.9	1	06/29/2019 16:57	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.136		0.0258	0.100	0.119	1	07/01/2019 00:17	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*88.2*				*77.0-120*		*07/01/2019 00:17*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00152	B	0.000475	0.00100	0.00119	1	06/29/2019 19:17	WG1304043
Toluene	0.00522	J	0.00149	0.00500	0.00594	1	06/29/2019 19:17	WG1304043
Ethylbenzene	0.00415	B	0.000630	0.00250	0.00297	1	06/29/2019 19:17	WG1304043
Total Xylenes	0.0132	B	0.00568	0.00650	0.00772	1	06/29/2019 19:17	WG1304043
(S) Toluene-d8	*104*				*75.0-131*		*06/29/2019 19:17*	WG1304043
(S) 4-Bromofluorobenzene	*105*				*67.0-138*		*06/29/2019 19:17*	WG1304043
(S) 1,2-Dichloroethane-d4	*101*				*70.0-130*		*06/29/2019 19:17*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1000		9.57	4.00	23.8	5	07/02/2019 15:11	WG1304201
C28-C40 Oil Range	964		3.26	4.00	47.5	10	07/03/2019 18:12	WG1304201
(S) o-Terphenyl	*61.2*				*18.0-148*		*07/03/2019 18:12*	WG1304201
(S) o-Terphenyl	*36.4*				*18.0-148*		*07/02/2019 15:11*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.9		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	932		5.04	10.0	63.4	5	06/29/2019 17:40	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	1620		27.5	0.100	127	1000	07/01/2019 14:33	WG1304495
(S) a,a,a-Trifluorotoluene(FID)	*96.6*				*77.0-120*		*07/01/2019 14:33*	WG1304495

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	60.7		0.101	0.00100	0.254	200	07/01/2019 14:53	WG1304170
Toluene	1.57		0.0317	0.00500	0.127	20	06/29/2019 22:21	WG1304043
Ethylbenzene	74.6		0.134	0.00250	0.634	200	07/01/2019 14:53	WG1304170
Total Xylenes	3.89		0.121	0.00650	0.165	20	06/29/2019 22:21	WG1304043
(S) Toluene-d8	*104*				*75.0-131*		*06/29/2019 22:21*	WG1304043
(S) Toluene-d8	*103*				*75.0-131*		*07/01/2019 14:53*	WG1304170
(S) 4-Bromofluorobenzene	*109*				*67.0-138*		*06/29/2019 22:21*	WG1304043
(S) 4-Bromofluorobenzene	*107*				*67.0-138*		*07/01/2019 14:53*	WG1304170
(S) 1,2-Dichloroethane-d4	*95.6*				*70.0-130*		*06/29/2019 22:21*	WG1304043
(S) 1,2-Dichloroethane-d4	*97.7*				*70.0-130*		*07/01/2019 14:53*	WG1304170

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	2760		102	4.00	254	50	07/03/2019 20:21	WG1304201
C28-C40 Oil Range	2600		17.4	4.00	254	50	07/03/2019 20:21	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 20:21*	WG1304201

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.6		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	201		1.01	10.0	12.7	1	06/29/2019 17:48	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	2.88	B J	0.690	0.100	3.18	25	07/01/2019 14:54	WG1304495
(S) a,a,a-Trifluorotoluene(FID)	*99.9*				*77.0-120*		*07/01/2019 14:54*	WG1304495

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00416		0.000509	0.00100	0.00127	1	07/01/2019 12:31	WG1304170
Toluene	0.0115		0.00159	0.00500	0.00636	1	07/01/2019 12:31	WG1304170
Ethylbenzene	0.0102		0.000674	0.00250	0.00318	1	07/01/2019 12:31	WG1304170
Total Xylenes	0.0238		0.00608	0.00650	0.00827	1	07/01/2019 12:31	WG1304170
(S) Toluene-d8	*97.5*				*75.0-131*		*07/01/2019 12:31*	WG1304170
(S) 4-Bromofluorobenzene	*104*				*67.0-138*		*07/01/2019 12:31*	WG1304170
(S) 1,2-Dichloroethane-d4	*112*				*70.0-130*		*07/01/2019 12:31*	WG1304170

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1720		20.5	4.00	50.9	10	07/02/2019 17:14	WG1304201
C28-C40 Oil Range	1630		6.97	4.00	102	20	07/03/2019 19:31	WG1304201
(S) o-Terphenyl	*55.6*				*18.0-148*		*07/02/2019 17:14*	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 19:31*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.0		1	06/28/2019 10:10	WG1303206

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	850		0.903	10.0	11.4	1	06/29/2019 17:57	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.156		0.0247	0.100	0.114	1	07/01/2019 01:34	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*86.8*				*77.0-120*		*07/01/2019 01:34*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00115	B	0.000454	0.00100	0.00114	1	06/29/2019 19:37	WG1304043
Toluene	0.00231	J	0.00142	0.00500	0.00568	1	06/29/2019 19:37	WG1304043
Ethylbenzene	0.00284	B J	0.000602	0.00250	0.00284	1	06/29/2019 19:37	WG1304043
Total Xylenes	0.00955	B	0.00543	0.00650	0.00738	1	06/29/2019 19:37	WG1304043
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 19:37*	WG1304043
(S) 4-Bromofluorobenzene	*108*				*67.0-138*		*06/29/2019 19:37*	WG1304043
(S) 1,2-Dichloroethane-d4	*101*				*70.0-130*		*06/29/2019 19:37*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	888		36.6	4.00	90.9	20	07/02/2019 18:06	WG1304201
C28-C40 Oil Range	1170		6.22	4.00	90.9	20	07/02/2019 18:06	WG1304201
(S) o-Terphenyl	*47.7*	J7			*18.0-148*		*07/02/2019 18:06*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	96.6		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	146		0.823	10.0	10.3	1	06/29/2019 18:05	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	91.1		2.56	0.100	11.8	114	07/01/2019 01:54	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*94.5*				*77.0-120*		*07/01/2019 01:54*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0672		0.00394	0.00100	0.00985	9.52	06/29/2019 23:02	WG1304043
Toluene	0.165		0.0123	0.00500	0.0493	9.52	06/29/2019 23:02	WG1304043
Ethylbenzene	0.163		0.00522	0.00250	0.0246	9.52	06/29/2019 23:02	WG1304043
Total Xylenes	0.679	B	0.0471	0.00650	0.0640	9.52	06/29/2019 23:02	WG1304043
(S) Toluene-d8	*106*				*75.0-131*		*06/29/2019 23:02*	WG1304043
(S) 4-Bromofluorobenzene	*104*				*67.0-138*		*06/29/2019 23:02*	WG1304043
(S) 1,2-Dichloroethane-d4	*95.7*				*70.0-130*		*06/29/2019 23:02*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1830		16.7	4.00	41.4	10	07/02/2019 18:19	WG1304201
C28-C40 Oil Range	1330		7.09	4.00	103	25	07/03/2019 20:09	WG1304201
(S) o-Terphenyl	*59.9*				*18.0-148*		*07/02/2019 18:19*	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 20:09*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.3		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1230		1.00	10.0	12.6	1	06/29/2019 18:14	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	2990		54.7	0.100	252	2000	07/01/2019 15:14	WG1304495
(S) a,a,a-Trifluorotoluene(FID)	*101*				*77.0-120*		*07/01/2019 15:14*	WG1304495

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	8.64		0.0101	0.00100	0.0252	20	06/29/2019 23:22	WG1304043
Toluene	31.9		0.0315	0.00500	0.126	20	06/29/2019 23:22	WG1304043
Ethylbenzene	33.6		0.0134	0.00250	0.0630	20	06/29/2019 23:22	WG1304043
Total Xylenes	142		0.121	0.00650	0.164	20	06/29/2019 23:22	WG1304043
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 23:22*	WG1304043
(S) 4-Bromofluorobenzene	*106*				*67.0-138*		*06/29/2019 23:22*	WG1304043
(S) 1,2-Dichloroethane-d4	*92.6*				*70.0-130*		*06/29/2019 23:22*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	5700		102	4.00	252	50	07/03/2019 21:00	WG1304201
C28-C40 Oil Range	340		1.73	4.00	25.2	5	07/02/2019 15:38	WG1304201
(S) o-Terphenyl	*36.7*				*18.0-148*		*07/02/2019 15:38*	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 21:00*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.5		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	285		0.930	10.0	11.7	1	06/29/2019 18:22	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	37.0		2.54	0.100	11.7	100	07/01/2019 02:35	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*94.6*				*77.0-120*		*07/01/2019 02:35*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00894		0.00187	0.00100	0.00468	4	07/01/2019 14:12	WG1304170
Toluene	0.0198	J	0.00585	0.00500	0.0234	4	07/01/2019 14:12	WG1304170
Ethylbenzene	0.0318		0.00248	0.00250	0.0117	4	07/01/2019 14:12	WG1304170
Total Xylenes	0.129		0.0224	0.00650	0.0304	4	07/01/2019 14:12	WG1304170
(S) Toluene-d8	*102*				*75.0-131*		*07/01/2019 14:12*	WG1304170
(S) 4-Bromofluorobenzene	*112*				*67.0-138*		*07/01/2019 14:12*	WG1304170
(S) 1,2-Dichloroethane-d4	*99.2*				*70.0-130*		*07/01/2019 14:12*	WG1304170

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	7110		376	4.00	935	200	07/03/2019 21:12	WG1304201
C28-C40 Oil Range	5720		64.1	4.00	935	200	07/03/2019 21:12	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 21:12*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.7		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	610		0.938	10.0	11.8	1	06/29/2019 18:31	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.176		0.0256	0.100	0.118	1	07/01/2019 02:56	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*90.1*				*77.0-120*		*07/01/2019 02:56*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00135	B	0.000500	0.00100	0.00125	1.06	06/29/2019 19:58	WG1304043
Toluene	0.00479	J	0.00156	0.00500	0.00625	1.06	06/29/2019 19:58	WG1304043
Ethylbenzene	0.00265	B J	0.000663	0.00250	0.00313	1.06	06/29/2019 19:58	WG1304043
Total Xylenes	0.0103	B	0.00598	0.00650	0.00813	1.06	06/29/2019 19:58	WG1304043
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 19:58*	WG1304043
(S) 4-Bromofluorobenzene	*106*				*67.0-138*		*06/29/2019 19:58*	WG1304043
(S) 1,2-Dichloroethane-d4	*103*				*70.0-130*		*06/29/2019 19:58*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	138		19.0	4.00	47.2	10	07/02/2019 17:00	WG1304201
C28-C40 Oil Range	555		3.23	4.00	47.2	10	07/02/2019 17:00	WG1304201
(S) o-Terphenyl	*46.4*				*18.0-148*		*07/02/2019 17:00*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.5		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	105		0.952	10.0	12.0	1	06/29/2019 18:40	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	5.92	J	2.60	0.100	12.0	100	07/01/2019 03:16	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*93.0*				*77.0-120*		*07/01/2019 03:16*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00337		0.000479	0.00100	0.00120	1	07/01/2019 12:51	WG1304170
Toluene	0.00907		0.00150	0.00500	0.00599	1	07/01/2019 12:51	WG1304170
Ethylbenzene	0.00655		0.000635	0.00250	0.00299	1	07/01/2019 12:51	WG1304170
Total Xylenes	0.0140		0.00572	0.00650	0.00778	1	07/01/2019 12:51	WG1304170
(S) Toluene-d8	*100*				*75.0-131*		*07/01/2019 12:51*	WG1304170
(S) 4-Bromofluorobenzene	*103*				*67.0-138*		*07/01/2019 12:51*	WG1304170
(S) 1,2-Dichloroethane-d4	*110*				*70.0-130*		*07/01/2019 12:51*	WG1304170

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	980		9.64	4.00	23.9	5	07/02/2019 15:52	WG1304201
C28-C40 Oil Range	928		3.28	4.00	47.9	10	07/03/2019 18:39	WG1304201
(S) o-Terphenyl	*47.1*				*18.0-148*		*07/03/2019 18:39*	WG1304201
(S) o-Terphenyl	*40.0*				*18.0-148*		*07/02/2019 15:52*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.6		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	185		0.908	10.0	11.4	1	06/29/2019 19:05	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	5.20	J	2.48	0.100	11.4	100	07/01/2019 03:37	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*93.7*				*77.0-120*		*07/01/2019 03:37*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00805		0.000457	0.00100	0.00114	1	07/01/2019 13:12	WG1304170
Toluene	0.0122		0.00143	0.00500	0.00571	1	07/01/2019 13:12	WG1304170
Ethylbenzene	0.0110		0.000605	0.00250	0.00285	1	07/01/2019 13:12	WG1304170
Total Xylenes	0.0263		0.00546	0.00650	0.00742	1	07/01/2019 13:12	WG1304170
(S) Toluene-d8	*101*				*75.0-131*		*07/01/2019 13:12*	WG1304170
(S) 4-Bromofluorobenzene	*107*				*67.0-138*		*07/01/2019 13:12*	WG1304170
(S) 1,2-Dichloroethane-d4	*108*				*70.0-130*		*07/01/2019 13:12*	WG1304170

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	600		9.19	4.00	22.8	5	07/02/2019 16:06	WG1304201
C28-C40 Oil Range	600		3.13	4.00	45.7	10	07/03/2019 18:52	WG1304201
(S) o-Terphenyl	*28.8*				*18.0-148*		*07/03/2019 18:52*	WG1304201
(S) o-Terphenyl	*17.2*	J2			*18.0-148*		*07/02/2019 16:06*	WG1304201

Sample Narrative:

L1113484-35 WG1304201: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.6		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	193		0.999	10.0	12.6	1	06/29/2019 19:14	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.160		0.0273	0.100	0.126	1	07/01/2019 03:57	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*88.8*				*77.0-120*		*07/01/2019 03:57*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000766	B J	0.000502	0.00100	0.00126	1	06/29/2019 20:18	WG1304043
Toluene	U		0.00157	0.00500	0.00628	1	06/29/2019 20:18	WG1304043
Ethylbenzene	0.00433	B	0.000666	0.00250	0.00314	1	06/29/2019 20:18	WG1304043
Total Xylenes	0.0156	B	0.00600	0.00650	0.00816	1	06/29/2019 20:18	WG1304043
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 20:18*	WG1304043
(S) 4-Bromofluorobenzene	*108*				*67.0-138*		*06/29/2019 20:18*	WG1304043
(S) 1,2-Dichloroethane-d4	*105*				*70.0-130*		*06/29/2019 20:18*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	19.6		2.02	4.00	5.02	1	07/02/2019 13:49	WG1304201
C28-C40 Oil Range	26.1		0.344	4.00	5.02	1	07/02/2019 13:49	WG1304201
(S) o-Terphenyl	*33.8*				*18.0-148*		*07/02/2019 13:49*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.9		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	427		0.995	10.0	12.5	1	06/29/2019 19:22	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	272		3.04	0.100	14.0	112	07/01/2019 04:18	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*94.2*				*77.0-120*		*07/01/2019 04:18*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0967	B	0.00949	0.00100	0.0237	18.96	06/30/2019 00:44	WG1304043
Toluene	0.0339	J	0.0297	0.00500	0.119	18.96	06/30/2019 00:44	WG1304043
Ethylbenzene	0.996		0.0126	0.00250	0.0593	18.96	06/30/2019 00:44	WG1304043
Total Xylenes	0.953	B	0.113	0.00650	0.154	18.96	06/30/2019 00:44	WG1304043
(S) Toluene-d8	*104*				*75.0-131*		*06/30/2019 00:44*	WG1304043
(S) 4-Bromofluorobenzene	*106*				*67.0-138*		*06/30/2019 00:44*	WG1304043
(S) 1,2-Dichloroethane-d4	*94.7*				*70.0-130*		*06/30/2019 00:44*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	185		2.01	4.00	5.01	1	07/02/2019 14:03	WG1304201
C28-C40 Oil Range	55.2		0.343	4.00	5.01	1	07/02/2019 14:03	WG1304201
(S) o-Terphenyl	*42.4*				*18.0-148*		*07/02/2019 14:03*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.5		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	152		0.942	10.0	11.8	1	06/29/2019 19:31	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.417		0.0257	0.100	0.118	1	07/01/2019 04:38	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*90.8*				*77.0-120*		*07/01/2019 04:38*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00141	B	0.000474	0.00100	0.00118	1	06/29/2019 20:39	WG1304043
Toluene	0.00563	J	0.00148	0.00500	0.00592	1	06/29/2019 20:39	WG1304043
Ethylbenzene	0.00509	B	0.000628	0.00250	0.00296	1	06/29/2019 20:39	WG1304043
Total Xylenes	0.0163	B	0.00566	0.00650	0.00770	1	06/29/2019 20:39	WG1304043
(S) Toluene-d8	*103*				*75.0-131*		*06/29/2019 20:39*	WG1304043
(S) 4-Bromofluorobenzene	*110*				*67.0-138*		*06/29/2019 20:39*	WG1304043
(S) 1,2-Dichloroethane-d4	*102*				*70.0-130*		*06/29/2019 20:39*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1760		19.1	4.00	47.4	10	07/02/2019 16:47	WG1304201
C28-C40 Oil Range	1520		6.49	4.00	94.7	20	07/03/2019 19:05	WG1304201
(S) o-Terphenyl	*60.4*				*18.0-148*		*07/02/2019 16:47*	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 19:05*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.0		1	06/28/2019 09:53	WG1303207

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	203		0.846	10.0	10.6	1	06/29/2019 19:39	WG1303288

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	261		2.33	0.100	10.7	101	07/01/2019 04:59	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*92.2*				*77.0-120*		*07/01/2019 04:59*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.793		0.00344	0.00100	0.00860	8.08	07/01/2019 14:33	WG1304170
Toluene	0.538		0.0107	0.00500	0.0430	8.08	07/01/2019 14:33	WG1304170
Ethylbenzene	3.10		0.00456	0.00250	0.0215	8.08	07/01/2019 14:33	WG1304170
Total Xylenes	8.01		0.0411	0.00650	0.0559	8.08	07/01/2019 14:33	WG1304170
(S) Toluene-d8	*101*				*75.0-131*		*07/01/2019 14:33*	WG1304170
(S) 4-Bromofluorobenzene	*133*				*67.0-138*		*07/01/2019 14:33*	WG1304170
(S) 1,2-Dichloroethane-d4	*99.2*				*70.0-130*		*07/01/2019 14:33*	WG1304170

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	3160		17.1	4.00	42.6	10	07/02/2019 18:32	WG1304201
C28-C40 Oil Range	2200		14.6	4.00	213	50	07/03/2019 20:47	WG1304201
(S) o-Terphenyl	*42.3*				*18.0-148*		*07/02/2019 18:32*	WG1304201
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 20:47*	WG1304201

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.7		1	06/28/2019 14:11	WG1303369

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	648		8.99	10.0	113	9.803922	06/29/2019 11:37	WG1303289

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	2.67		0.0250	0.100	0.115	1	07/01/2019 05:19	WG1304175
(S) a,a,a-Trifluorotoluene(FID)	*93.6*				*77.0-120*		*07/01/2019 05:19*	WG1304175

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0492		0.000461	0.00100	0.00115	1	06/29/2019 20:59	WG1304043
Toluene	0.0577		0.00144	0.00500	0.00576	1	06/29/2019 20:59	WG1304043
Ethylbenzene	0.264		0.000611	0.00250	0.00288	1	06/29/2019 20:59	WG1304043
Total Xylenes	0.703		0.00551	0.00650	0.00749	1	06/29/2019 20:59	WG1304043
(S) Toluene-d8	*105*				*75.0-131*		*06/29/2019 20:59*	WG1304043
(S) 4-Bromofluorobenzene	*106*				*67.0-138*		*06/29/2019 20:59*	WG1304043
(S) 1,2-Dichloroethane-d4	*99.5*				*70.0-130*		*06/29/2019 20:59*	WG1304043

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	163		18.6	4.00	46.1	10	07/02/2019 16:20	WG1304201
C28-C40 Oil Range	541		3.16	4.00	46.1	10	07/02/2019 16:20	WG1304201
(S) o-Terphenyl	*6.48*	J2			*18.0-148*		*07/02/2019 16:20*	WG1304201

Sample Narrative:

L1113484-40 WG1304201: Surrogate failure due to matrix interference

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.5		1	06/28/2019 14:11	WG1303369

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	332		9.30	10.0	117	10	06/29/2019 11:46	WG1303289

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0723	J	0.0254	0.100	0.117	1	07/02/2019 13:19	WG1304876
(S) a,a,a-Trifluorotoluene(FID)	*86.4*				*77.0-120*		*07/02/2019 13:19*	WG1304876

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000935	0.00100	0.00234	2	06/30/2019 19:55	WG1304044
Toluene	0.00477	J	0.00292	0.00500	0.0117	2	06/30/2019 19:55	WG1304044
Ethylbenzene	0.00459	J	0.00124	0.00250	0.00585	2	06/30/2019 19:55	WG1304044
Total Xylenes	U		0.0112	0.00650	0.0152	2	06/30/2019 19:55	WG1304044
(S) Toluene-d8	*106*				*75.0-131*		*06/30/2019 19:55*	WG1304044
(S) 4-Bromofluorobenzene	*106*				*67.0-138*		*06/30/2019 19:55*	WG1304044
(S) 1,2-Dichloroethane-d4	*98.9*				*70.0-130*		*06/30/2019 19:55*	WG1304044

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	701		9.41	4.00	23.4	5	07/01/2019 23:30	WG1304203
C28-C40 Oil Range	575		8.01	4.00	117	25	07/03/2019 23:24	WG1304203
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 23:24*	WG1304203
(S) o-Terphenyl	*40.8*				*18.0-148*		*07/01/2019 23:30*	WG1304203

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.8		1	06/28/2019 14:11	WG1303369

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	168	B	9.09	10.0	114	9.920635	06/29/2019 11:54	WG1303289

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	41.9		2.50	0.100	11.5	100	07/01/2019 16:42	WG1304637
(S) a,a,a-Trifluorotoluene(FID)	*101*				*77.0-120*		*07/01/2019 16:42*	WG1304637

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0134		0.00369	0.00100	0.00922	8	06/30/2019 20:14	WG1304044
Toluene	0.0349	J	0.0115	0.00500	0.0461	8	06/30/2019 20:14	WG1304044
Ethylbenzene	0.115		0.00488	0.00250	0.0230	8	06/30/2019 20:14	WG1304044
Total Xylenes	1.00		0.0441	0.00650	0.0599	8	06/30/2019 20:14	WG1304044
(S) Toluene-d8	*100*				*75.0-131*		*06/30/2019 20:14*	WG1304044
(S) 4-Bromofluorobenzene	*106*				*67.0-138*		*06/30/2019 20:14*	WG1304044
(S) 1,2-Dichloroethane-d4	*98.7*				*70.0-130*		*06/30/2019 20:14*	WG1304044

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1700		9.27	4.00	23.0	5	07/01/2019 23:43	WG1304203
C28-C40 Oil Range	1180		7.89	4.00	115	25	07/03/2019 23:38	WG1304203
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*07/03/2019 23:38*	WG1304203
(S) o-Terphenyl	*22.2*				*18.0-148*		*07/01/2019 23:43*	WG1304203

Method Blank (MB)

(MB) R3425983-1 06/28/19 14:00

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1113484-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-01 06/28/19 14:00 • (DUP) R3425983-3 06/28/19 14:00

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	87.1	80.3	1	8.09		10

Laboratory Control Sample (LCS)

(LCS) R3425983-2 06/28/19 14:00

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3425981-1 06/28/19 10:27

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1113484-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-12 06/28/19 10:27 • (DUP) R3425981-3 06/28/19 10:27

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	90.5	91.6	1	1.27		10

Laboratory Control Sample (LCS)

(LCS) R3425981-2 06/28/19 10:27

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3425980-1 06/28/19 10:10

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1113484-22 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-22 06/28/19 10:10 • (DUP) R3425980-3 06/28/19 10:10

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	82.0	83.2	1	1.42		10

Laboratory Control Sample (LCS)

(LCS) R3425980-2 06/28/19 10:10

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3425979-1 06/28/19 09:53

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1113484-33 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-33 06/28/19 09:53 • (DUP) R3425979-3 06/28/19 09:53

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.7	85.2	1	0.489		10

Laboratory Control Sample (LCS)

(LCS) R3425979-2 06/28/19 09:53

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3426015-1 06/28/19 14:11

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1112425-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1112425-01 06/28/19 14:11 • (DUP) R3426015-3 06/28/19 14:11

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	82.6	82.6	1	0.0316		10

Laboratory Control Sample (LCS)

(LCS) R3426015-2 06/28/19 14:11

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3425953-1 06/28/19 14:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	1.89	J	0.795	10.0

L1113484-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-01 06/28/19 15:45 • (DUP) R3425953-3 06/28/19 15:52

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	169	189	1	11.2		20

L1113484-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-20 06/28/19 19:26 • (DUP) R3425953-6 06/28/19 19:34

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	554	630	1	13.0		20

Laboratory Control Sample (LCS)

(LCS) R3425953-2 06/28/19 15:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	195	97.4	90.0-110	

L1113484-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113484-07 06/28/19 16:44 • (MS) R3425953-4 06/28/19 17:09 • (MSD) R3425953-5 06/28/19 17:18

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	588	133	719	730	99.6	101	1	80.0-120			1.51	20

Method Blank (MB)

(MB) R3426183-1 06/29/19 15:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	2.76	J	0.795	10.0

L1113484-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-21 06/29/19 16:06 • (DUP) R3426183-3 06/29/19 16:15

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	540	549	1	1.49		20

L1113484-39 Original Sample (OS) • Duplicate (DUP)

(OS) L1113484-39 06/29/19 19:39 • (DUP) R3426183-6 06/29/19 19:48

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	203	210	1	3.15		20

Laboratory Control Sample (LCS)

(LCS) R3426183-2 06/29/19 15:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	193	96.3	90.0-110	

L1113484-26 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113484-26 06/29/19 16:57 • (MS) R3426183-4 06/29/19 17:23 • (MSD) R3426183-5 06/29/19 17:31

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	594	290	902	873	103	98.2	1	80.0-120			3.19	20

Method Blank (MB)

(MB) R3426050-1 06/29/19 08:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	2.53	J	0.795	10.0

L1113151-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1113151-03 06/29/19 09:46 • (DUP) R3426050-3 06/29/19 09:55

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	141	147	9.960159	4.13		20

L1113691-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1113691-01 06/29/19 12:03 • (DUP) R3426050-6 06/29/19 12:11

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	142	148	9.823183	4.10		20

Laboratory Control Sample (LCS)

(LCS) R3426050-2 06/29/19 09:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	201	101	90.0-110	

L1113420-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113420-02 06/29/19 10:12 • (MS) R3426050-4 06/29/19 10:20 • (MSD) R3426050-5 06/29/19 10:29

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	48.1	535	519	9.80	9.50	9.940358	80.0-120	J6	J6	3.00	20

Method Blank (MB)

(MB) R3426138-3 06/29/19 00:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*102*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426138-1 06/28/19 23:05 • (LCSD) R3426138-2 06/28/19 23:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.54	5.52	101	100	72.0-127			0.369	20
(S) a,a,a-Trifluorotoluene(FID)				*92.3*	*92.6*	*77.0-120*				

L1113484-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113484-07 06/29/19 04:23 • (MS) R3426138-4 06/29/19 07:47 • (MSD) R3426138-5 06/29/19 08:08

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	6.47	56.8	571	602	79.5	84.3	100	10.0-151			5.32	28
(S) a,a,a-Trifluorotoluene(FID)					*93.2*	*92.9*		*77.0-120*				

Method Blank (MB)

(MB) R3426550-4 07/01/19 12:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*92.9*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426550-2 07/01/19 11:45 • (LCSD) R3426550-3 07/01/19 12:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.81	5.77	106	105	72.0-127			0.544	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*106*	*77.0-120*				

Method Blank (MB)

(MB) R3426321-2 06/30/19 21:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*93.8*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3426321-1 06/30/19 20:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.66	84.7	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*99.8*	*77.0-120*	

L1113484-39 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113484-39 07/01/19 04:59 • (MS) R3426321-3 07/01/19 05:40 • (MSD) R3426321-4 07/01/19 06:01

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.85	261	638	665	63.6	68.3	101	10.0-151			4.24	28
(S) a,a,a-Trifluorotoluene(FID)					*102*	*102*		*77.0-120*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R3426500-3 07/01/19 12:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	0.0270	J	0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*101*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426500-1 07/01/19 11:40 • (LCSD) R3426500-2 07/01/19 12:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.58	5.80	101	105	72.0-127			3.96	20
(S) a,a,a-Trifluorotoluene(FID)				*93.0*	*92.9*	*77.0-120*				

Method Blank (MB)

(MB) R3426631-2 07/01/19 13:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*100*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426631-1 07/01/19 11:49 • (LCSD) R3426631-3 07/01/19 15:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.15	5.22	93.7	94.9	72.0-127			1.36	20
(S) a,a,a-Trifluorotoluene(FID)				*107*	*106*	*77.0-120*				

L1112092-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1112092-21 07/01/19 23:54 • (MS) R3426631-4 07/02/19 00:18 • (MSD) R3426631-5 07/02/19 00:42

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	7.46	ND	131	117	70.2	62.7	25	10.0-151			11.2	28
(S) a,a,a-Trifluorotoluene(FID)					*105*	*104*		*77.0-120*				

Method Blank (MB)

(MB) R3426882-2 07/02/19 12:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.7*			*77.0-120*

Laboratory Control Sample (LCS)

(LCS) R3426882-1 07/02/19 10:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
TPH (GC/FID) Low Fraction	5.50	4.53	82.4	72.0-127	
(S) a,a,a-Trifluorotoluene(FID)			*105*	*77.0-120*	



Method Blank (MB)

(MB) R3426134-2 06/29/19 14:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*103*			*75.0-131*
(S) 4-Bromofluorobenzene	*111*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*86.2*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3426134-1 06/29/19 13:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.105	83.9	70.0-123	
Ethylbenzene	0.125	0.133	106	74.0-126	
Toluene	0.125	0.113	90.5	75.0-121	
Xylenes, Total	0.375	0.333	88.8	72.0-127	
(S) Toluene-d8			*105*	*75.0-131*	
(S) 4-Bromofluorobenzene			*109*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*92.3*	*70.0-130*	

L1113484-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113484-03 06/29/19 19:40 • (MS) R3426134-3 06/29/19 22:46 • (MSD) R3426134-4 06/29/19 23:04

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.159	36.3	34.5	32.6	0.000	0.000	20	10.0-149	V	V	5.64	37
Ethylbenzene	0.159	53.6	56.8	51.2	101	0.000	20	10.0-160	E	E V	10.4	38
Toluene	0.159	7.87	9.35	8.16	46.7	9.11	20	10.0-156		J6	13.7	38
Xylenes, Total	0.477	51.4	56.6	50.7	54.3	0.000	20	10.0-160		V	11.1	38
(S) Toluene-d8					*108*	*104*		*75.0-131*				
(S) 4-Bromofluorobenzene					*132*	*130*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*90.8*	*95.0*		*70.0-130*				

Method Blank (MB)

(MB) R3426147-3 06/29/19 14:40

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	0.000474	J	0.000400	0.00100
Ethylbenzene	0.000883	J	0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*106*			*75.0-131*
(S) 4-Bromofluorobenzene	*105*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*95.0*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426147-1 06/29/19 13:08 • (LCSD) R3426147-2 06/29/19 13:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.109	0.107	87.3	85.7	70.0-123			1.80	20
Ethylbenzene	0.125	0.127	0.130	102	104	74.0-126			1.90	20
Toluene	0.125	0.115	0.115	91.8	92.1	75.0-121			0.353	20
Xylenes, Total	0.375	0.425	0.416	113	111	72.0-127			2.14	20
(S) Toluene-d8				*102*	*101*	*75.0-131*				
(S) 4-Bromofluorobenzene				*109*	*105*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*104*	*101*	*70.0-130*				

Method Blank (MB)

(MB) R3426407-2 06/30/19 15:54

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*107*			*75.0-131*
(S) 4-Bromofluorobenzene	*102*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*97.8*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3426407-1 06/30/19 14:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.103	82.8	70.0-123	
Ethylbenzene	0.125	0.116	92.4	74.0-126	
Toluene	0.125	0.107	85.9	75.0-121	
Xylenes, Total	0.375	0.416	111	72.0-127	
(S) Toluene-d8			*107*	*75.0-131*	
(S) 4-Bromofluorobenzene			*102*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*93.2*	*70.0-130*	

L1113484-41 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113484-41 06/30/19 19:55 • (MS) R3426407-3 06/30/19 23:39 • (MSD) R3426407-4 06/30/19 23:58

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.146	U	0.0567	0.0552	19.4	18.9	2	10.0-149			2.81	37
Ethylbenzene	0.146	0.00459	0.0913	0.0997	29.7	32.5	2	10.0-160			8.79	38
Toluene	0.146	0.00477	0.137	0.133	45.1	44.0	2	10.0-156			2.35	38
Xylenes, Total	0.438	U	0.441	0.413	50.3	47.1	2	10.0-160			6.58	38
(S) Toluene-d8					*107*	*103*		*75.0-131*				
(S) 4-Bromofluorobenzene					*110*	*103*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*93.5*	*90.5*		*70.0-130*				

Method Blank (MB)

(MB) R3426531-3 07/01/19 11:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*103*			*75.0-131*
(S) 4-Bromofluorobenzene	*99.1*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*109*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426531-1 07/01/19 09:55 • (LCSD) R3426531-2 07/01/19 10:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.138	0.135	110	108	70.0-123			2.32	20
Ethylbenzene	0.125	0.139	0.141	111	113	74.0-126			1.90	20
Toluene	0.125	0.0992	0.100	79.4	80.1	75.0-121			0.859	20
Xylenes, Total	0.375	0.343	0.342	91.5	91.2	72.0-127			0.292	20
(S) Toluene-d8				*98.5*	*98.5*	*75.0-131*				
(S) 4-Bromofluorobenzene				*102*	*104*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*120*	*115*	*70.0-130*				

Method Blank (MB)

(MB) R3426466-3 07/01/19 11:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*103*			*75.0-131*
(S) 4-Bromofluorobenzene	*99.1*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*109*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426466-1 07/01/19 09:55 • (LCSD) R3426466-2 07/01/19 10:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.138	0.135	110	108	70.0-123			2.32	20
Ethylbenzene	0.125	0.139	0.141	111	113	74.0-126			1.90	20
Toluene	0.125	0.0992	0.100	79.4	80.1	75.0-121			0.859	20
Xylenes, Total	0.375	0.343	0.342	91.5	91.2	72.0-127			0.292	20
(S) Toluene-d8				*98.5*	*98.5*	*75.0-131*				
(S) 4-Bromofluorobenzene				*102*	*104*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*120*	*115*	*70.0-130*				

Method Blank (MB)

(MB) R3426864-3 07/02/19 10:49

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*108*			*75.0-131*
(S) 4-Bromofluorobenzene	*108*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*83.6*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3426864-1 07/02/19 09:35 • (LCSD) R3426864-2 07/02/19 09:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.105	0.104	84.2	83.6	70.0-123			0.769	20
Ethylbenzene	0.125	0.131	0.136	105	109	74.0-126			3.72	20
Toluene	0.125	0.115	0.114	91.9	91.4	75.0-121			0.558	20
Xylenes, Total	0.375	0.333	0.330	88.8	88.0	72.0-127			0.905	20
(S) Toluene-d8				*105*	*107*	*75.0-131*				
(S) 4-Bromofluorobenzene				*106*	*106*	*67.0-138*				
(S) 1,2-Dichloroethane-d4				*86.3*	*83.6*	*70.0-130*				

Method Blank (MB)

(MB) R3426601-1 07/01/19 15:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*66.4*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3426601-2 07/01/19 15:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	43.5	87.0	50.0-150	
(S) o-Terphenyl			*104*	*18.0-148*	

Method Blank (MB)

(MB) R3426897-1 07/02/19 13:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*56.2*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3426897-2 07/02/19 13:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.4	70.8	50.0-150	
(S) o-Terphenyl			*56.0*	*18.0-148*	

L1113484-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113484-22 07/02/19 14:17 • (MS) R3426897-3 07/02/19 14:29 • (MSD) R3426897-4 07/02/19 14:43

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	60.9	373	282	460	0.000	142	5	50.0-150	V	J3	48.0	20
(S) o-Terphenyl					*37.2*	*51.5*		*18.0-148*				

Method Blank (MB)

(MB) R3426586-1 07/01/19 16:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*60.5*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3426586-2 07/01/19 17:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	37.6	75.2	50.0-150	
(S) o-Terphenyl			*63.2*	*18.0-148*	

L1113959-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113959-01 07/03/19 08:06 • (MS) R3427175-1 07/03/19 08:19 • (MSD) R3427175-2 07/03/19 08:31

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	57.7	815	1280	1290	808	828	10	50.0-150	V	V	0.897	20
(S) o-Terphenyl					*49.8*	*56.0*		*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MQL (dry)	Method Quantitation Limit.
MQL	Method Quantitation Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
SDL (dry)	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Qualifier	Description
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

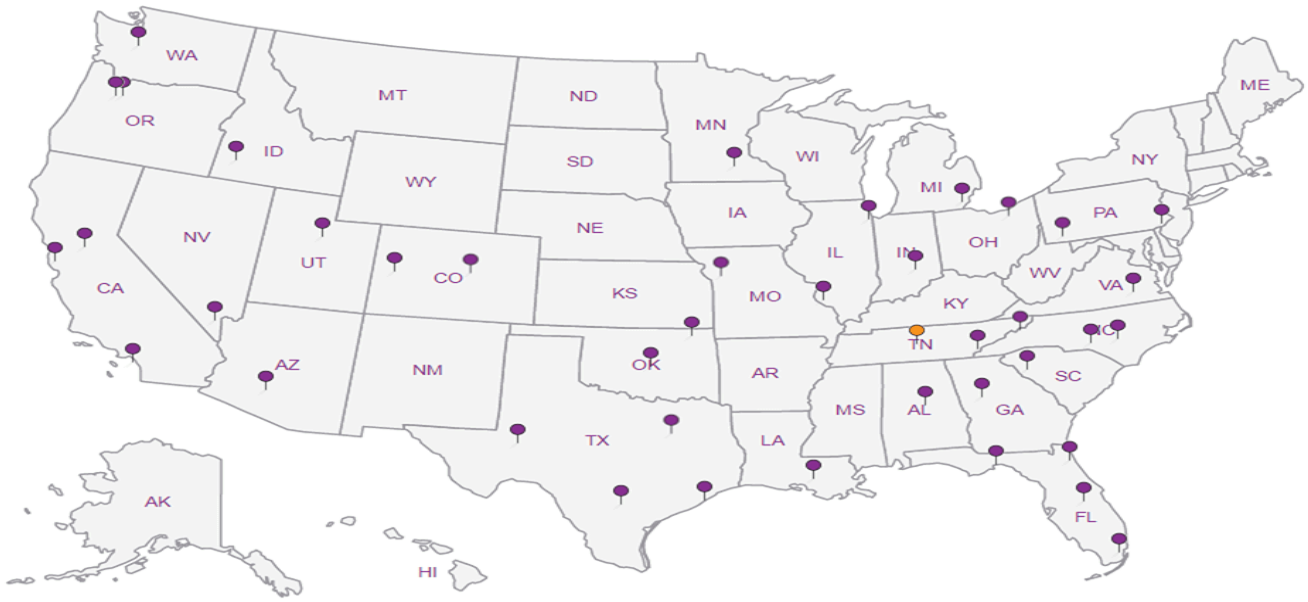
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: ~~Julie Speer~~ Cindy Crain

Email To: ~~jspeer@trccompanies.com;~~ jstoffel@trccompanies.com, ccrain@trccompanies.com

Project Description: HFNR - Tank 106 Release - Artesia

City/State Collected:

Phone: ~~512-684-3170~~
Fax: 432-215-6730

Client Project # 322192.2019.0000.

Lab Project # TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE-300 4ozClr-NoPres	DRO/MRO 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Hold							Remarks	Sample # (lab only)
Boring-01-0-0.5	Grab	SS		6/25/19	1440	5	X	X	X									-01
Boring-02-0-0.5		SS			1150		X	X	X									02
Boring-02-2-2.5		SS			1200					X								
Boring-02-3.5-4		SS			1210		X	X	X									03
Boring-03-0-0.5		SS			1220		X	X	X									04
Boring-04-0-0.5		SS			1230		X	X	X									05
Boring-05-0-0.5		SS			1240		X	X	X									06
Boring-06-0-0.5		SS			1120		X	X	X									07
Boring-06-2,-2.5		SS			1130					X								
Boring-06-3.5-4	↓	SS	↓	↓	1140	↓	X	X	X									08

Analysis / Container / Preservative

Chain of Custody Page 1 of 5

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1113484
1231

Acctnum: TRCATX
Template: T152077
Prelogin: P715926
TSR: 526 - Chris McCord
PB:
Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH ____ Temp ____
Flow ____ Other ____

Samples returned via:
__ UPS __ FedEx __ Courier √ SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD SCREEN: <

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeOH TBR	If preservation required by Login: Date/Time
	6/26/19	14:00			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
	6.26.19	16:30		1.6+0=1.6 AS 250	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Condition: NCF / OK
				6/27/19 8:00	

6-143

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: ~~Julie Speer~~ Cindy Cesin

Email To: ~~jspeer@trccompanies.com;~~ jstoffel@trccompanies.com CCesin@trccompanies.com

Project Description: HFNR - Tank 106 Release - Artesia

City/State Collected:

Phone: ~~512-684-3170~~
Fax: 432-215-6730

Client Project # 322192.2019.0000.

Lab Project # TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE-300 4ozClr-NoPres	DRO/MRO 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Hold						Remarks	Sample # (lab only)
Boring-07-0-0.5	Grab	SS	—	6/25/19	1250	5	X	X	X								-09
Boring-08-0-0.5		SS			0830		X	X	X								10
Boring-08-2-2.5		SS			0840		X	X	X								11
Boring-08-3.5-4		SS			0850					X							
Boring-09-0-0.5		SS			1300		X	X	X								12
Boring-10-0-0.5		SS			0800		X	X	X								13
Boring-10-2-2.5		SS			0810					X							
Boring-10-3.5-4		SS			0820		X	X	X								14
Boring-11-0-0.5		SS			1310		X	X	X								15
Boring-12-0-0.5	↓	SS	↓	↓	0900	↓	X	X	X								16

Analysis / Container / Preservative

Chain of Custody Page 2 of 5

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1113484

Table #

Acctnum: TRCATX
Template: T152077
Prelogin: P715926
TSR: 526 - Chris McCord
PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier USPS

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Jared Stoffel	6/26/19	14:00			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
	6.26.19	16:30	SCOA	1.6+0:1.6 250	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF / OK
				6/27/19 8:00	

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: ~~Julie Speer~~ Cindy Crain

Email To: ~~jspeer@trccompanies.com;~~ jstoffel@trccompanies.com ccrain@trccompanies.com

Project Description: HFNR - Tank 106 Release - Actcsia

City/State Collected:

Phone: ~~512-684-3170~~
Fax: 432-215-6730

Client Project # 322192.2019.0000.

Lab Project # TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ___

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Chain of Custody Page 3 of 5

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1113484

Table #

Acctnum: TRCATX
Template: T152077
Prelogin: P715926
TSR: 526 - Chris McCord
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE-300 4ozClr-NoPres	DRO/MRO 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Hold	Remarks	Sample # (lab only)
Boring-12-0-0.5	Grab	SS	—	6/25/19	0910	5	X	X	X			17
Boring-12-3.5-4		SS			0920					X		
Boring-13-0-0.5		SS			1320		X	X	X			18
Boring-14-0-0.5		SS			0930		X	X	X			19
Boring-14-2-2.5		SS			0940		X	X	X			20
Boring-14-3.5-4		SS			0950					X		
Boring-15-0-0.5		SS			1330		X	X	X			21
Boring-16-0-0.5		SS			1000		X	X	X			22
Boring-16-2-2.5		SS			1010					X		
Boring-16-3.5-4		SS			1020		X	X	X			23

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier ✓ SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP __Y __N
COC Signed/Accurate: ✓ __N
Bottles arrive intact: ✓ __N
Correct bottles used: ✓ __N
Sufficient volume sent: ✓ __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	6/26/19	1400			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
	6.26.19	1630	SWA	1.6+0=1.6 4 5/2 250	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF (OK)
				6/27/19 8:00	

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: ~~Julie Speer~~ Cindy Crain

Email To: ~~jspeer@trccompanies.com~~; jstoffel@trccompanies.com ccrain@trccompanies.com

Project Description: HFNR - Tank 106 Release - Artesia

City/State Collected:

Phone: ~~512-684-3170~~ Fax: 432-215-6730

Client Project # 322192.2019.0000.

Lab Project # TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day
Date Results Needed

Quote #

Immediately Packed on Ice N ___ Y X

Analysis / Container / Preservative

Chain of Custody Page 4 of 5

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1113484

Table #

Acctnum: TRCATX
Template: T152077
Prelogin: P715926
TSR: 526 - Chris McCord
PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	CHLORIDE-300 4ozClr-NoPres	DRO/MRO 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Remarks	Sample # (lab only)
Boring-17-0-0.5	Grab	SS		6/25/19	1340	5	X	X	X		24
Boring-18-0-0.5		SS			1350		X	X	X		25
Boring-19-0-0.5		SS			1500		X	X	X		26
Boring-19-2-2.5		SS			1510		X	X	X		27
Boring-20-0-0.5		SS			1520		X	X	X		28
Boring-21-0-0.5		SS			1530		X	X	X		29
Boring-22-0-0.5		SS			1100		X	X	X		30
Boring-22-2-2.5		SS			1110		X	X	X		31
Boring-23-0-0.5		SS			1350		X	X	X		32
Boring-24-0-0.5		SS			1400		X	X	X		33

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier ✓ SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP __Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	6/26/19	14:00			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
	6.26.19	16:30	SWA	1.6+0-1.6 AS 52 250	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition NCF / OK
				6/27/19 8:00	

<mike.bratcher@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>
Subject: [EXT] RE: C-141 for Tank 106 Release

Carl,
Thanks for the time to discuss this release this morning. As we clarified, the remaining ~10 bbls in question were removed as impacted soil. Removal was based on visual confirmation.
If you have any questions or further discussion is needed, please let us know.
Thanks,
Robert

RobertCombs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, June 13, 2019 3:21 PM
To: Combs, Robert
Cc: Denton, Scott; Dade, Lewis (Randy); Leik, Jason; Sahba, Arsin M.; Bratcher, Mike, EMNRD; Griswold, Jim, EMNRD
Subject: RE: C-141 for Tank 106 Release

Robert:

Good afternoon. Please let's make this the final extension. OCD observes ~10 bbls remaining after initial "sour water/oil" recovery efforts and the rains will soon be coming. As I recall, Navajo needed more time for workers to enter the tank to evaluate and repair it.

OCD approves, but on the condition the investigation will need to be deeper, unless Navajo can mobilize sooner to address this release.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail:CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to:http://www.emnrd.state.nm.us/OCD **and see "Publications")**

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Wednesday, June 12, 2019 2:15 PM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Denton, Scott <Scott.Denton@HollyFrontier.com>; Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>; Leik,

Jason <Jason.Leik@HollyFrontier.com>; Sahba, Arsin M. <Arsin.Sahba@HollyFrontier.com>; Bratcher, Mike, EMNRD <mike.bratcher@state.nm.us>
Subject: [EXT] FW: C-141 for Tank 106 Release

Carl,

For the release reported below/attached, we would like to request a 90-day extension to complete the fieldwork and reporting requirements. The initial response (recovery and surface impacts removal) was addressed by 3/28/19. We would prefer to compete the soil sampling after the tank cleaning and repairs are completed. If approved, we would be providing our followup (remediation plan or closure report) by 9/22/19.

If you have any questions or comments, please let us know.

Thanks,
Robert

RobertCombs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

From: Dade, Lewis (Randy)
Sent: Tuesday, June 11, 2019 2:21 PM
To: Combs, Robert
Subject: FW: C-141 for Tank 106 Release

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
575-746-5451 (f)
Email: Lewis.Dade@hollyfrontier.com

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From: Dade, Lewis (Randy)
Sent: Thursday, March 28, 2019 9:01 AM

To: CARL J. CHAVEZ (CarlJ.Chavez@state.nm.us)
Cc: Dade, Lewis (Randy)
Subject: C-141 for Tank 106 Release

Carl,
Please find attached the C-141 for Tank 106 release dated 3/26/2019. Please contact me if there are any questions that you may have. Thanks for your help.
Thanks again, Randy

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
575-746-5451 (f)
Email: Lewis.Dade@hollyfrontier.com

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CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged and confidential.If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments.Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release? **At monitoring well MW-64 in October 2018, located 180 feet southwest of Tank 106**	15.65 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site? **Release contained within tank's secondary containment (earthen berms) within Refinery**	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs – **Not Applicable**
- ☐ Photographs including date and GIS information – **Not Applicable**
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 9/20/19

email: Robert.Combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
See Figure 1

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
Not applicable as described in the attached letter report which requests a variance to remediation of 19.15.29.12 NMAC closure criteria.

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
See Table 1

☒ Description of remediation activities
Impacted soil (based on indications of moisture, staining, and odor) was removed and placed into roll off bins and transported offsite for disposal. Following characterization/confirmation sampling, a cover of at least one foot of clean soil was placed over the entire release area. The clean soil was then covered with at least one inch of gravel. The soil cover will protect workers during routine operations and maintenance activities.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 9/20/19

email: Robert.Combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

HOLLYFRONTIER.

September 20, 2019

Mr. Carl Chavez
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: March 2019 Tank 106 Release, Site Characterization, Assessment, and Closure Report, HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico, GW-028

HollyFrontier Navajo Refining LLC (HFNR) is submitting this letter to document site characterization and assessment results of the Tank 106 release that was discovered on March 26, 2019, at the Artesia Refinery (refinery) located in Artesia, New Mexico. This letter also serves as the closure report for this release. Between 40 to 50 barrels of sour water overflowed from Tank 106 due to a local gauge and transmitter malfunction. The release was entirely contained within the Tank 106 secondary containment which consists of earthen berms. The release location and extent of the release area is shown on Figure 1. The initial Form C-141 (Release Notification) for this release was submitted to the New Mexico Oil Conservation Division (OCD) on March 27, 2019. The final Form C-141 is provided as Attachment A.

INITIAL RELEASE RESPONSE ACTIVTIES

HFNR completed the following activities after discovery of the release:

- Reduced tank level to prevent further release.
- Free liquids were recovered and placed into the refinery wastewater treatment system, upstream of the oil/water separator. Over 40 barrels of released fluids were recovered.
- Impacted soil (based on indications of moisture, staining, and odor) was removed and placed into roll off bins. Approximately 85 cubic yards of soil was removed and transported to Gandy Marley, Inc. Contaminated Soils Landfarm in Roswell, New Mexico for disposal. Soil waste disposal documentation is provided as Attachment B.
- Microbes (Terminator-HSD) and a surface washing agent (Gold Crew SW) were applied to the open excavation to address residual hydrocarbons in soil. Safety data sheets (SDSs) for each material applied are provided as Attachment C. The excavation was left open pending assessment conducted in June 2019 as described below.

SITE CHARACTERIZATION

The release occurred within an active operating refinery that is continuously secured to prevent access from unauthorized personnel and the general public. The release occurred within the Southeast Tank Farm Area which is listed as Area of Concern (AOC) 3 in the refinery's Post-Closure Care Permit (PCC Permit) issued by the New Mexico Environment Department (NMED) in December 2010. AOC 3 is subject to corrective action per the requirements of the refinery's Resource Conservation and Recovery Act (RCRA) permit and is also covered by the refinery's facility-wide groundwater monitoring and recovery system. As stated above, the release area is entirely contained within the Tank 106 secondary containment which consists of earthen berms. Site characterization information for the release is provided below in accordance with 19.15.29.11 NMAC.

- Depth to Groundwater: Monitoring well MW-64 is located approximately 180 feet to the southwest (down/cross-gradient) of the release area and is gauged and sampled on a semi-annual basis as part of the facility-wide groundwater monitoring program. The depth to groundwater measured at MW-64 in April 2018 and October 2018 was 15.75 feet below ground surface (bgs) and 15.65 feet bgs, respectively. Groundwater gauging records were provided to the OCD in the *2018 Groundwater Monitoring Report* on June 14, 2019.

- Distance to Nearest Watercourse: Eagle Draw is located approximately 0.4 miles to the northwest of the release area. Eagle Draw is an ephemeral watercourse that primarily flows only following rain events. The refinery maintains facility containment berms around storage tanks and along Eagle Draw which prevent releases from entering the watercourse. The release from Tank 106 did not reach Eagle Draw.

- Distance to Nearest Down-gradient Fresh Water Well or Spring: Based on refinery knowledge and New Mexico Office of the State Engineer (NM OSE) online records, the nearest fresh water supply well (RA-313) down-gradient of the release location is located within the refinery property boundary, approximately 1,400 feet (0.27 miles) east from the release location. RA-313 is an irrigation/industrial use well owned and operated by HFNR; it is screened within the deep Artesian aquifer (screened from 904 to 1,157 bgs) and is sampled on an annual basis as part of the facility-wide groundwater monitoring program. NM OSE online records indicate there are additional potential water wells, or Points of Diversion (PODs), located within 0.5-miles of the release location. A screenshot from the NM OSE ArcGIS Online tool showing all potential wells located within 0.5-miles of the release location and a table summarizing available information for any potential domestic, irrigation, or industrial wells are provided in Attachment D (monitoring and recovery wells were omitted from the table). Most of the potential wells identified within 0.5-miles in the NM OSE online database are monitoring or recovery wells. No domestic or irrigation wells are

located within 0.5-miles down-gradient of the release location. There are no known fresh water springs within 0.5-miles of the release location.

SOIL ASSESSMENT ACTIVITIES

TRC Environmental Corporation (TRC) conducted soil assessment activities on behalf of HFNR on June 25, 2019. Soil samples were collected from a total of 27 discrete locations, designated as Boring-01 through Boring-27, at an approximate spacing of one per 200 square feet (ft^2) over the approximate 5,400-ft^2 release area. Soil sample locations are shown on Figure 1.

Discrete soil samples were collected from the open excavation using a decontaminated hand auger. Samples were collected from 0 to 0.5 feet bgs (depth relative to ground surface after soil removal activities) at each soil sample location to evaluate the lateral distribution and extent of potential release impacts. Deeper discrete samples were collected from select sample locations from the 0.5-foot interval above the depth of refusal encountered with the hand auger to evaluate the vertical distribution and extent of potential impacts, as follows:

- 2 to 2.5 feet bgs: Boring-02, Boring -06, Boring -10, Boring -16, and Boring -27; and
- 3.5 to 4 feet bgs: Boring-08, Boring -12, Boring -14, Boring -19, and Boring -22.

Four field duplicate soil samples were also collected for data quality assurance/quality control (QA/QC) purposes. Each soil sample was submitted for the following laboratory analysis:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8260B;
- Total petroleum hydrocarbons (TPH) gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) by Method 8015M; and
- Chloride by Method 300.

Soil samples were field screened for volatile compounds using a photoionization detector (PID). Field PID readings are provided as Attachment E.

SOIL ASSESSMENT RESULTS

Soil analytical results are summarized and compared to applicable 19.15.29 NMAC closure criteria and worker protection criteria in Table 1. The closure criteria are consistent with Table 1 of 19.15.29 NMAC for a minimum depth of <50 feet to groundwater below the horizontal boundary of the release. The worker protection criteria are consistent with the Industrial/Occupational Soil Screening Levels (SSLs, cancer value if available) in Table A-1 of the February 2019 (Revision 2, June 2019) NMED *Risk Assessment Guidance for Investigations and Remediation, Volume I.* Laboratory analytical reports are provided as Attachment F.

Closure Criteria – 19.15.29 NMAC

As highlighted in yellow on Table 1, analytical results indicate the following constituents are present in soil at concentrations that exceed their respective 19.15.29 NMAC closure criteria:

- Benzene: In surface soil samples, benzene concentrations ranged from not detected in Boring-18 to 0.793 mg/kg in Boring-12, which do not exceed the closure criteria. Analytical results exceeded the benzene closure criteria of 10 milligrams per kilogram (mg/kg) in three deeper soil samples collected at Boring-02 (36.3 mg/kg), Boring-06 (10.2 mg/kg), and Boring-19 (60.7 mg/kg). Benzene concentrations in deeper samples increased by up to five orders of magnitude compared to the surface soil samples.

- BTEX: In surface soil samples, BTEX concentrations ranged from 0.00674 mg/kg in Boring-03 to 12.44 mg/kg in Boring-12, which do not exceed the closure criteria. Analytical results exceeded the BTEX closure criteria of 50 mg/kg in seven deeper samples collected at Boring-02 (144 mg/kg), Boring-06 (231 mg/kg), Boring-08 (63.7), Boring-14 (65.6 mg/kg), Boring-16 (58.7 mg/kg), Boring-19 (141 mg/kg), and Boring-22 (216 mg/kg). BTEX concentrations in deeper samples increased by up to five orders of magnitude compared to the surface soil samples.

- TPH: Analytical results exceeded the TPH closure criteria of 100 mg/kg in all soil samples collected except in the surface soil sample at Boring-27. TPH concentrations in surface soil samples ranged from 46 mg/kg at Boring-27 to 17,977 mg/kg at Boring-13. TPH concentrations in deeper soil samples ranged from 131 mg/kg at Boring-12 to 9,030 mg/kg at Boring-22. The relative magnitude of GRO, DRO, and MRO concentrations at each sample location varied laterally and vertically across the release area. GRO concentrations increased up to four orders of magnitude in deeper samples compared to surface soil samples, while DRO and MRO concentration generally decreased in deeper soil samples. GRO concentrations were generally greater than DRO and MRO concentrations in the deeper samples, while DRO concentrations were generally greater than GRO and MRO concentrations in the surface soil samples.

- Chloride: Analytical results exceeded the chloride closure criteria of 600 mg/kg in surface samples at Boring-04, Boring-14, Boring-16, Boring-21, and Boring-24; and in deeper samples collected at Boring-02, Boring-12, Boring-14, Boring-16, and Boring-22. Chloride concentrations increased with depth across the release area, with concentrations ranging from 105 mg/kg (Boring-25) to 850 mg/kg (Boring-21) in surface samples; and from 335 mg/kg (Boring-08) to 2,410 mg/kg (Boring-16) in deeper samples.

Benzene, toluene, ethylbenzene, xylenes, GRO, DRO, and chloride have historically been detected in down-gradient monitoring well MW-64 prior to the Tank 106 release date at concentrations that exceed their respective critical groundwater screening levels (CGWSLs), as

reported to the OCD in previous annual groundwater monitoring reports and the *2018 Annual Groundwater Monitoring Report* that was submitted on June 13, 2019. The location of monitoring well MW-64 relative to the release area is shown on Figure 1.

Worker Protection Criteria – NMED SSLs

The bulk of the surface soil impacts associated with the March 2019 release were removed during initial release response activities as described above. As highlighted in purple on Table 1, analytical results indicate the following constituents are present in soil at concentrations that exceed their respective worker protection criteria (Industrial/Occupational Soil SSLs):

- TPH GRO: Analytical results did not exceed the GRO worker protection criteria in any surface soil samples collected from across the release area. GRO exceeded the worker protection criteria of 500 mg/kg in deeper soil samples collected at Boring-06, Boring-08, Boring-10, Boring-14, Boring-16, Boring-19, and Boring-22 with a maximum concentration of 2,990 mg/kg in Boring-22.
- TPH DRO: Analytical results exceeded the DRO worker protection criteria of 3,000 mg/kg in surface samples at Boring-04, Boring-08, Boring-09, Boring-12, Boring-13, Boring-17, Boring-18, and Boring-23 with a maximum concentration of 11,300 mg/kg in Boring-13. DRO exceeded the worker protection criteria in the deeper sample collected at Boring-22 (5,700 mg/kg).
- TPH MRO: Analytical results exceeded the MRO worker protection criteria of 3,800 mg/kg in surface samples at Boring-09, Boring-13, Boring-17, and Boring-23 with a maximum concentration of 6,640 mg/kg in Boring-13. MRO did not exceed the worker protection criteria in any of the deeper soil samples collected.

WORKER PROTECTION CORRECTIVE MEASURES

To prevent refinery workers from potential exposure to residual impacted surface soil within the release area, HFNR placed and compacted at least one foot of clean soil over the entire release area. The clean soil was then covered with at least one inch of gravel. The soil cover will protect workers during routine operations and maintenance activities in accordance with the NMED *Risk Assessment Guidance for Investigations and Remediation, Volume I.* HFNR maintains a safety and excavation work permit program that will prevent any excavation of this area without approval of the refinery Environmental Department. Appropriate measures will be taken to protect workers during excavation activities in the event excavation is required within the release area.

REQUEST FOR VARIANCE TO 19.15.29.11(A)(5), 19.15.29.11(B), AND 19.15.29.12 NMAC – ASSESSMENT AND REMEDIATION

HFNR recovered the material released from Tank 106 in March 2019 (over 40 bbls recovered as free liquid and the remaining less than 10 bbls excavated within 85 cubic yards of stained/oily soil) and completed release assessment activities as described above. However, vertical and lateral delineation of detected constituents to 19.15.29.12 NMAC closure criteria is not complete and HFNR believes it is impractical to complete as described further below. Per 19.15.29.14 NMAC, OCD can allow a variance to any part of 19.15.29 NMAC if a written request for a variance is submitted that includes, *(1) a detailed statement explaining the need for a variance; and (2) a detailed written demonstration that the variance will provide equal or greater protection of fresh water, public health and the environment.*

Need for a Variance

Setting aside the scope of applicability of 19.15.29 NMAC, this set of regulations is intended to address releases to the environment from oil and natural gas development and production. In most cases, such releases occur on public or private property that does not belong to the responsible party, and in some cases is uncontrolled and accessible to the general public. They also most likely occur in areas where soil, groundwater, and surface water resources are not already impacted, and where released materials are exposed to surface runoff. These areas are primarily not under the jurisdiction of a hazardous waste permit and/or an OCD discharge permit. In these situations, the conservative remediation requirements of 19.15.29 NMAC are warranted and appropriate. However, in an operating oil refinery, the rigorous application of the closure standards in 19.15.29.12 NMAC Table 1 without consideration of land use and physical control of the area, pre-existing impacts to soil and groundwater, and ongoing remediation programs is impractical and places unnecessary burden on the refinery and the OCD.

HFNR believes that BTEX, chlorides, and TPH are present in varying concentrations in soil and groundwater throughout the refinery due to spills associated with historic operation of the refinery. Because of these historical spills, HFNR believes it is impractical to delineate the March 2019 Tank 106 release for BTEX, chlorides, and TPH in soil to the standards provided in 19.15.29.12 NMAC Table 1. The standards provided in 19.15.29.12 NMAC Table 1 are intended to be protective of previously un-impacted areas. Furthermore, the refinery is already operating under permits from OCD and NMED that require investigation, remediation, and monitoring, address soil and groundwater impacts.

The release occurred within the Southeast Tank Farm Area which is listed as AOC 3 in the refinery's RCRA PCC Permit and is therefore also subject to investigation and corrective action in accordance with the PCC Permit under the direction of the NMED. As refinery operations will continue for the foreseeable future and investigation and corrective action of AOC 3 will also be conducted in accordance with the PCC Permit under the direction of the NMED, there is no net

benefit to human health and the environment to remediate this release to the standard provided in 19.15.29.12 NMAC Table 1. In fact, remediation and replacement with clean soils that would likely be re-impacted by fluctuating groundwater levels and/or future releases from an operating facility is inappropriate and is not supported by Environmental Protection Agency (EPA) corrective action guidance for operating facilities, which advises againstsuch an approach. Therefore, a variance from the requirements to assess and remediate to 19.15.29.12 NMAC Table 1 standards is needed.

Equal or Greater Protection of Fresh Water, Public Health, and the Environment

HFNR believes that the initial and subsequent response to the release mitigated any imminent risk to human health, or the environment. A cover material was placed in the spill area in order to provide separation distance so that the residual soil in exceedance of worker protection criteria that was exposed during release abatement activities is covered to ensure refinery workers are not exposed to the residual soil impacts during routine operations and maintenance activities. The refinery is secured continuously, preventing access to the area by the general public. The area is located within an existing tank berm, which will prevent any migration of surface water from the area. HFNR will continue to monitor shallow groundwater beneath and down-gradient of the release area (MW-64), which already contains constituents at concentrations greater than any potential leachate from the materials left in place from this release, on a semi-annual basis as part of the facility-wide groundwater monitoring program. HFNR also maintains an ongoing groundwater remediation program which includes recovering impacted groundwater from recovery trenches and wells located down-gradient of the release area.

Further excavation or active remediation of remaining soils at this release area would require the use of heavy or specialized equipment. These alternatives are not practical to implement in this area. The areal extent of the soil in exceedance of 19.15.29.12 NMAC Table 1 standards likely extends beneath sensitive refinery infrastructure (including tanks, process equipment, etc.,) and within engineered fill that supports and stabilizes sensitive refinery infrastructure. Excavation within the process areas (including tank farms) of the refinery also results in greater risk of causing another release, and greater potential for exposure to the general public through the transfer of the risk to another location. All potential additional remediation alternatives have a net negative effect on the environment as compared to leaving the materials in place within the active operating refinery and following on-going regulatory program requirements at the refinery. Thus, a variance from these requirements provides equal protection to fresh water, human health, and the environment. Finally, as stated above, the spill area is with an AOC identified in the RCRA PCC Permit and is subject to facility-wide corrective actions. Therefore, at the appropriate time (e.g., when land use or exposure assumptions change), the area will be fully-evaluated and remediated to ensure protection of human health and the environment consistent with its intended use.

A final Form C-141 (Site Assessment/Characterization and Closure) is included as Attachment A. If you have any questions or comments regarding this request, please feel free to contact me at 575-746-5487 or Robert Combs at 575-746-5382.

Sincerely,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Attachments:

Figure 1 – March 2019 Tank 106 Release Location and Soil Sample Location Map

Table 1 – Surface Soil Analytical Results

Attachment A – Site Assessment/Characterization, Remediation Plan, and Closure Form C-141
Attachment B – Soil Disposal Documentation
Attachment C – Safety Data Sheets of Microbes and Surface Washing Agent Applied to Release Area
Attachment D – Summary of Potential Fresh Water Wells Located within 0.5-miles of the Release Location
Attachment E – Field PID Readings s
Attachment F – Laboratory Analytical Reports

cc: HollyFrontier: R. Combs, J. Leik
TRC: J. Speer, C. Smith, C. Crain

Chavez, Carl J, EMNRD

From: Dade, Lewis (Randy) <Lewis.Dade@HollyFrontier.com>
Sent: Monday, September 9, 2019 8:58 AM
To: Chavez, Carl J, EMNRD; Denton, Scott; Combs, Robert; Leik, Jason
Cc: Dade, Lewis (Randy)
Subject: [EXT] C-141 Release Notification dated 9/3/2019
Attachments: SP_NRC02419090909480.pdf

Carl,
Please find attached the C-141 for the release dated 9/3/19. Please let me know if there is anything else I can do. Again, Thanks for your help.

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)
575-703-4735 (c)
575-746-5451 (f)
Email: Lewis.Dade@hollyfrontier.com

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District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: HollyFrontier Navajo Refining LLC	OGRID: 15694
Contact Name: Randy Dade	Contact Telephone: 575-746-5281
Contact email: Lewis.Dade@hollyfrontier.com	Incident # *(assigned by OCD)*
Contact mailing address: 501 E. Main St. Artesia, NM 88210	

Location of Release Source

Latitude 32,51'7.21" N_____ Longitude 104,23'41.39"W_____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: HollyFrontier Navajo Refining LLC	Site Type: Refinery
Date Release Discovered: 09/03/2019	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
	9	17S	28E	EDDY

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name: HollyFrontier Navajo Refining LLC*)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls):	Volume Recovered (bbls):
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☒ Other (describe) Non-Hazardous Cooling Tower blowdown to city POTW	Volume/Weight Released (provide units) Greater than 25 BBLs	Volume/Weight Recovered (provide units) No recovered fluid

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Cause of Release: Tubing line (½ inch) on Sample Station from Cooling Tower Blowdown line to City failed. Fluid sprayed to the East onto the ground. Water was shut off and tubing line repaired.

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Release volume is estimated to be greater than 25 bbls.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Notice was made by Randy Dade to OCD Santa Fe, Carl Chavez at 8:30 am, 9/4/2019 pm by phone.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment. Release was entirely contained in a secured and active operating facility

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☐ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Lewis Dade Title: Environmental Specialist

Signature: Lewis R Dade Date: 9/4/2019

email: Lewis.Dade@hollyfrontier.com Telephone: 575-746-5281

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

OCD Only

Received by: _____ Date: _____

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, September 4, 2019 5:00 PM
To: Denton, Scott (Scott.Denton@HollyFrontier.com)
Cc: Combs, Robert (Robert.Combs@hollyfrontier.com); Dade, Lewis (Randy); Griswold, Jim, EMNRD; Wade, Gabriel, EMNRD
Subject: May 2019 Cooling Tower Blowdown Release, Site Characterization, Assessment, and Closure Report Letter dated August 28, 2019

Scott:

Good afternoon. The New Mexico Oil Conservation Division (OCD) is in receipt of the above subject letter with attachments, etc.

Also, OCD was contacted this morning by Robert Combs and Randy Dade (HollyFrontier Navajo Refining, LLC- HFNR) regarding another release similar, if not identical, to the above subject release. A new C-141 is in development by HFNR. OCD's observes the request for corrective action of soil in the release area be deferred until the infrastructure is removed during other operations or the refinery is abandoned, whichever comes first. HFNR also indicated the release did not cause imminent risk to human health, or the environment. HFNR said it will continue to monitor shallow GW immediately beneath the release area (recovery trench RW-17) on a semi-annual basis as part of the FWGWMP. HFNR included a final C-141 as attachment A in its submittal to OCD.

OCD has reviewed the location of the release and actions taken by HFNR to characterize and obtain environmental laboratory data from the release.

OCD comments, observations, and determinations are as follows:

1) OCD reviewed the deferment section of the C-141 Form and has determined that the requirements for deferral are not met.
2) OCD observes from environmental data in Tables 1 and 2 that based on a water table less than 50 ft. deep, there are exceedances.
3) OCD acknowledges there are also NMED RCRA Criteria; however, OCD Regulations on the refinery proper also apply, and state regulations may be more stringent than RCRA regulatory limits.
4) OCD observes and appreciates HFNR's attempt to characterize the release based on saturated appearance(s) at surface and flagging to identify the extent of the release. However, the investigation approach of collecting surface samples with in the saturated area of the release, while beneficial, does not satisfy the OCD requirement of characterizing the horizontal and vertical extent of a release at depth. For example, clay or shale materials once impacted may spread outward beneath ground surface.
5) OCD has determined that HFNR should proceed to take corrective action to address the release(s). OCD Regulation 19.15.29 NMAC Table 1 is a good source for cleanup criteria.

OCD is available for further communication in this matter if HFNR disagrees, wants further input, or would like further explain its approach in this release scenario. You may recall, the standard release approach was to remove the stained soils, etc., based on BPJ, sample the bottom and sidewalls to verify the release was cleaned up, and provide photos of the excavation with environmental analytical lab data supporting the correction, remediation, etc. was complete.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us

"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

Chavez, Carl J, EMNRD

From: Combs, Robert <Robert.Combs@HollyFrontier.com>
Sent: Wednesday, August 28, 2019 3:09 PM
To: Chavez, Carl J, EMNRD
Cc: Griswold, Jim, EMNRD; Billings, Bradford, EMNRD; Denton, Scott; Leik, Jason
Subject: [EXT] 2019-05-28 CTBD spill report
Attachments: 2019-08-28 CTBD Transmittal Letter.pdf; 2019-08-28 C141 docs CTBD (2019-05-28).pdf

Carl,

Please find the attached letter report and reporting documents for this release. The entire submittal, including figures and lab reports, will be delivered by FedEx tomorrow.
If you have any questions, please let us know.

Thanks,
Robert

Robert Combs
Environmental Specialist
The HollyFrontier Companies
P.O. Box 159
Artesia, NM 88211-0159
office: 575-746-5382
cell: 575-308-2718
fax: 575-746-5451
Robert.Combs@hollyfrontier.com

From: Dade, Lewis (Randy)
Sent: Tuesday, June 11, 2019 2:20 PM
To: Combs, Robert
Cc: Dade, Lewis (Randy)
Subject: FW: C-141

From: Dade, Lewis (Randy)
Sent: Tuesday, June 04, 2019 6:21 AM
To: CARL J. CHAVEZ (CarlJ.Chavez@state.nm.us); JIM GRISWOLD (Jim.Griswold@state.nm.us)
Cc: Dade, Lewis (Randy)
Subject: C-141

Carl,
Please find attached the C-141 for the release dated 5/30/19. Please let me know if there is anything else I can do. Again, Thanks for your help.

Lewis R. (Randy) Dade
Environmental Specialist
The HollyFrontier Companies
501 E. Main / P.O. Box 159
Artesia, NM 88210 / 88211-0159
575-746-5281 (o)

575-703-4735 (c)
575-746-5451 (f)
Email: Lewis.Dade@hollyfrontier.com

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HOLLYFRONTIER.

August 28, 2019

Mr. Carl Chavez
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: May 2019 Cooling Tower Blowdown Release, Site Characterization, Assessment, and Closure Report, HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico, GW-028

HollyFrontier Navajo Refining LLC (Navajo) is submitting this letter to document site characterization and assessment results of the cooling tower blowdown water release that was discovered on May 28, 2019, at the Artesia Refinery (refinery) located in Artesia, New Mexico. This letter also serves as the closure report for this release. The release of the non-hazardous blowdown water occurred from plastic tubing that feeds a sampling station on the cooling tower blowdown line. The release location and extent of the release area was entirely contained within the refinery fence line and is shown on Figure 1. The initial Form C-141 (Release Notification) for this release was submitted to the New Mexico Oil Conservation Division (OCD) on May 30, 2019. The final Form C-141 is provided as Attachment A.

INITIAL RELEASE RESPONSE ACTIVTIES

Navajo completed the following activities after discovery of the release:

- The sample station was isolated and the tubing was repaired.
- The extent of the released wastewater on the ground surface was outlined with paint and flags. The release area was defined by the presence of wet soil; there was no staining present.

SITE CHARACTERIZATION

Site characterization information for the release is provided below in accordance with 19.15.29.11 NMAC. The release area is entirely contained within the refinery fence line.

- Depth to Groundwater: Recovery trench RW-17 is located immediately downgradient of the release area, as shown on Figure 1, and it is gauged and sampled from well RW-17A on a semi-annual basis as part of the facility-wide groundwater monitoring program. The depth to groundwater measured at recovery trench well RW-17A in April 2018 and October 2018 was 8.67 feet below ground surface (bgs) and 8.97 feet bgs, respectively. Groundwater gauging

records were provided to the OCD in the *2018 Groundwater Monitoring Report* on June 14, 2019.

- Distance to Nearest Watercourse: Eagle Creek (or Eagle Draw) is located approximately 130 feet east of the release area. Eagle Creek is an ephemeral watercourse that primarily flows only following rain events. The release did not reach Eagle Creek. There is a containment berm present along the waterway to prevent refinery runoff from reaching Eagle Creek.

- Distance to Nearest Fresh Water Well or Spring: Based on refinery knowledge and New Mexico Office of the State Engineer (NM OSE) online records, the nearest fresh water supply well (RA-01097) to the release location is located within the refinery fence line approximately 730 feet southwest and upgradient of the release location. This well is owned by the refinery and was plugged in 2018. NM OSE online records indicate there are additional potential water wells, or Points of Diversion (PODs), located within 0.5-miles of the release location. A screenshot from the NM OSE ArcGIS Online tool showing all potential wells located within 0.5-miles of the release location and a table summarizing available information for any potential domestic, irrigation, or industrial wells are provided in Attachment B (monitoring and recovery wells were omitted from the table). Most of the potential wells identified within 0.5-miles in the NM OSE online database are monitoring wells. No domestic or irrigation wells are located within 0.5-miles downgradient of the release location. There are no known fresh water springs within 0.5-miles of the release location.

SOIL ASSESSMENT ACTIVITIES

TRC Environmental Corporation (TRC) conducted soil assessment activities on behalf of Navajo on June 24, 2019. A total of 31 discrete grab surface soil samples, designated as Boring-01 through Boring-27, were collected at an approximate spacing of one per 200 square feet (ft^2) over the approximate 6,200-ft^2 release area. Soil samples were collected from 0 to 0.5 feet bgs using a decontaminated shovel. Three field duplicate soil samples were collected for data quality assurance/quality control (QA/QC) purposes. Soil sample locations are shown on Figure 1.

Each soil sample was submitted for the following laboratory analysis, consistent with wastewater releases that occurred at the refinery in 2018 (although cooling tower blowdown water is of better quality than primarily-treated wastewater):

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8260B;

- Total petroleum hydrocarbons (TPH) gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) by Method 8015M;

- Chloride, fluoride, and sulfate by Method 300;

- Phenol by Method 8270C; and
- Arsenic by Method 6010B (secondary analysis of synthetic precipitation leaching procedure [SPLP] conducted on maximum sample results, see below).

SOIL ASSESSMENT RESULTS

Laboratory analytical reports are provided in Attachment C. Soil analytical results are summarized and compared to applicable closure criteria in Table 1. Closure criteria were selected in accordance with 19.15.29 NMAC as follows:

- Analytical results for constituents included in Table 1 of 19.15.29 NMAC (benzene, TPH DRO and GRO, and chloride) are compared to the closure criteria provided in Table 1 of 19.15.29 NMAC for a minimum depth of <50 feet to groundwater below the horizontal boundary of the release.
- Analytical results of constituents that are not included in Table 1 of 19.15.29.12 NMAC are compared to the criteria listed in either: (1) 40 CFR 261.24, if the constituent is included on Table 1 of 40 CFR 261.24(b), or (2) the New Mexico Environment Department (NMED) risk-based soil screening levels (SSLs) with a dilution attenuation factor (DAF) of 20 per NMED *Risk Assessment Guidance for Site Investigations and Remediation, Volume I, Soil Screening Guidance for Human Health Risk* dated in March 2017 (2017 NMED Risk Assessment Guidance).
    - Arsenic is the only constituent that is included on Table 1 of 40 CFR 261.24(b). The criteria included in Table 1 of 40 CFR 261.24(b) consists of the maximum concentration for the toxicity characteristic determined by the toxicity characteristic leaching procedure [TCLP]. TCLP simulates landfill conditions to determine the maximum potential concentration of a constituent in leachate from the soil if placed in a landfill, which is not consistent with in-situ conditions (i.e., soil left in place). To determine the maximum potential concentration of arsenic in leachate from the soil in lieu of TCLP analysis, Navajo utilized the 20x rule (Section 1.2 of Method 1311) for a calculated TCLP result. None of the calculated TCLP values for arsenic exceeded the regulatory value in Table 1 of 40 CFR 261.24(b). Consistent with another approach previously used to determine the maximum potential concentration of arsenic in leachate from the soil under in-situ conditions, the two soil samples with the maximum detected arsenic concentrations were analyzed for arsenic by SPLP (Method 1312) and the analytical results are compared to the groundwater human health standard for arsenic in 20.6.2.3103 NMAC. One of the arsenic SPLP results (0.0172 milligrams per liter [mg/L] in Boring-23) did slightly exceed the groundwater standard of 0.01 mg/L. Although the SPLP result for the one sample exceeds the groundwater standard, the total arsenic result in that sample did not

exceed the New Mexico Environment Department (NMED) Industrial/Occupational Soil Screening Levels (SSLs) and the calculated TCLP result (0.5250 mg/L) was significantly below the toxicity characteristic concentration (5 mg/L). Therefore, Navajo believes that arsenic in surface soil is not a potential risk to refinery workers and does not pose an imminent threat to groundwater quality.

- All other constituents (phenol and fluoride) were compared to the Target Soil Leachate Concentration (Cw) Soil Screening Levels (SSLs, if available) with a DAF of 20 provided in Table A-1 of the February 2019 (Revision 2, June 2019) NMED *Risk Assessment Guidance for Investigations and Remediation, Volume I* (2019 NMED Guidance).
- Sulfate is not listed in Table 1 of 19.15.29.12 NMAC, 40 CFR 261.24, or the 2019 NMED Guidance. Therefore, there is no applicable closure criteria for sulfate.

As highlighted on Table 1, analytical results indicate the following constituents are present in surface soil at concentrations that exceed their respective closure criteria:

- Chloride: Analytical results exceeded the chloride closure criteria of 600 milligrams per kilogram (mg/kg) in 18 samples. Chloride concentrations in the release area ranged significantly from 81.6 mg/kg at Boring-31 to 6,590 mg/kg at Boring-21. The field duplicate results also indicate the chloride concentrations vary significantly within each sample location as the relative percent differences (RPDs) and absolute differences between each parent and duplicate sample do not meet quality acceptance limits (<30% for RPD and <method quantitation limit [MQL] for the absolute difference). The chloride results for samples Boring-03 and Boring -11 should be qualified as estimated above the closure criteria. The RPDs and absolute differences of each parent and duplicate sample pair for all detected analytes are provided in Table 2. The distribution and variable magnitude of the chloride concentrations indicate the presence of elevated chloride concentrations in surface soil is not attributable to the May 2019 cooling tower blowdown release. None of the chloride concentrations exceeded the NMED Industrial/Occupational SSL of 58,400,000 mg/kg (5.84×10^7 mg/kg). NMED does not have any other SSLs established for chloride.
- TPH: Analytical results exceeded the TPH closure criteria of 100 mg/kg in 19 samples. TPH concentrations in the release area ranged significantly from 0.568 mg/kg at Boring-24 (duplicate sample) to 676 mg/kg at Boring-03. The field duplicate results also indicate the TPH concentrations vary significantly within each sample location as the RPDs and absolute differences between each parent and duplicate sample do not meet quality acceptance limits (<30% for RPD and <MQL for the absolute difference). The TPH results for samples Boring-03 and Boring-24 should be qualified as estimated above the closure criteria. The distribution and variable magnitude of the TPH concentrations indicate the presence of TPH in surface soil is not attributable to the May 2019 cooling tower blowdown release. Further, TPH is not

commonly associated with cooling tower blowdown water and no indicator compounds associated with TPH mixtures (BTEX) were detected in exceedance of the closure criteria in surface soil in the release area. None of the TPH concentrations exceeded their respective NMED SSLs:

- Industrial/Occupational SSLs: 500 mg/kg for GRO, 3,000 mg/kg for DRO, and 3,800 mg/kg; and
- Soil-to-Groundwater SSLs (Table 6-4 of 2019 NMED Guidance): 6,930 mg/kg for GRO, 5,720 mg/kg for DRO, and 4,610 mg/kg for MRO.

Chloride and DRO have historically been detected in nearby recovery trench well RW-17A at concentrations that exceed their respective critical groundwater screening levels (CGWSLs), as reported to the OCD in previous annual groundwater monitoring reports and the *2018 Annual Groundwater Monitoring Report* that was submitted on June 14, 2019. The locations of recovery trench RW-17 wells (standpipes) relative to the release area are shown on Figure 1. Due to the variability in the data for these constituents, Navajo will review its sampling procedures and lab performance for future release assessments.

REQUEST FOR DEFERRED CORRECTIVE ACTION

Navajo requests no further action at this time for the May 2019 cooling tower blowdown release under 19.51.29 NMAC based on the following:

- The distribution and variability of TPH and chloride concentrations across the release area indicate they are not attributable to the May 2019 release. The variability of chloride concentrations in soil observed in the release area was consistent with conditions observed at other locations in and outside of the refinery.
- The variable TPH and chloride concentrations that exceed 19.15.29 NMAC closure criteria are significantly less than their respective NMED SSLs, including Industrial/Occupational SSLs and Soil-to-Groundwater SSLs.
- The release area is entirely contained within an active operating facility that is surrounded by a six-foot-tall chain-link, steel post fence topped with three strands of barbed wire. Entry through the fence is only allowed by authorized personnel through limited access gates controlled by either electronic access cards or security guards posted at the main gate 24 hours per day.
- Shallow groundwater monitoring beneath the release area is ongoing. Berms present along Eagle Creek will prevent runoff of any surface soil constituents from reaching Eagle Creek.

As shown on the aerial photograph included on Figure 1, the release area occurred in an area containing sensitive refinery infrastructure. In accordance with Paragraph (2) of Subsection C of

19.15.29.12 NMAC, Navajo requests that corrective action of soil in the release area be deferred until the infrastructure is removed during other operations or the refinery is abandoned, whichever comes first. Navajo believes that the release did not cause an imminent risk to human health, or the environment. Navajo will continue to monitor shallow groundwater immediately beneath the release area (recovery trench RW-17) on a semi-annual basis as part of the facility-wide groundwater monitoring program. A final Form C-141 (Site Assessment/Characterization and Remediation Plan Deferral Request) is included as Attachment A.

If you have any questions or comments regarding this request, please feel free to contact me at 575-746-5487 or Robert Combs at 575-746-5382.

Sincerely,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Attachments:
Figure 1 – May 2019 Cooling Tower Blowdown Release Location and Soil Sample Location Map
Table 1 – Surface Soil Analytical Results
Table 2 – Surface Soil Field Duplicate QA/QC Results
Attachment A – Site Assessment/Characterization and Closure Form C-141
Attachment B – Summary of Potential Fresh Water Wells Located within 0.5-miles of the Release Location
Attachment C – Analytical Laboratory Reports

cc: HF: R. Combs, J. Leik
TRC: J. Speer, C. Smith, C. Crain

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release? **Recovery well RW-17A in October 2018, installed in recovery trench located adjacent to the release area**	8.97 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse? **Eagle Creek, an ephemeral watercourse that primarily flows only following rain events, is located approx 130 feet east of the release area. The release did not reach Eagle Creek and there is a containment berm present to prevent refinery runoff from reaching Eagle Creek.**	☒ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data – **Not Applicable**
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs – **Not Applicable**
- ☐ Photographs including date and GIS information – **Not Applicable**
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 8/28/19

email: robert.combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☐ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☒ Extents of contamination must be fully delineated. **Not practicable to delineate as the impacts observed were not attributable to the release based on the distribution and variability of the concentrations. The release area was visually delineated and physically marked with the placement of pin flags and paint.**

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater. **The surface soil impacts observed within the release area do not pose an imminent risk to human health or the environment (groundwater or surface water). The release area is entirely contained within a secured and active operating facility. Groundwater monitoring beneath the release area is ongoing and the shallow groundwater is not used for domestic or irrigation purposes. Berms present along Eagle Creek will prevent runoff of surface soil impacts from reaching Eagle Creek.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 8/28/19

email: robert.combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

August 28, 2019

Mr. Carl Chavez
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: May 2019 Cooling Tower Blowdown Release, Site Characterization, Assessment, and Closure Report, HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico, GW-028

HollyFrontier Navajo Refining LLC (Navajo) is submitting this letter to document site characterization and assessment results of the cooling tower blowdown water release that was discovered on May 28, 2019, at the Artesia Refinery (refinery) located in Artesia, New Mexico. This letter also serves as the closure report for this release. The release of the non-hazardous blowdown water occurred from plastic tubing that feeds a sampling station on the cooling tower blowdown line. The release location and extent of the release area was entirely contained within the refinery fence line and is shown on Figure 1. The initial Form C-141 (Release Notification) for this release was submitted to the New Mexico Oil Conservation Division (OCD) on May 30, 2019. The final Form C-141 is provided as Attachment A.

INITIAL RELEASE RESPONSE ACTIVTIES

Navajo completed the following activities after discovery of the release:

- The sample station was isolated and the tubing was repaired.
- The extent of the released wastewater on the ground surface was outlined with paint and flags. The release area was defined by the presence of wet soil; there was no staining present.

SITE CHARACTERIZATION

Site characterization information for the release is provided below in accordance with 19.15.29.11 NMAC. The release area is entirely contained within the refinery fence line.

- Depth to Groundwater: Recovery trench RW-17 is located immediately downgradient of the release area, as shown on Figure 1, and it is gauged and sampled from well RW-17A on a semi-annual basis as part of the facility-wide groundwater monitoring program. The depth to groundwater measured at recovery trench well RW-17A in April 2018 and October 2018 was 8.67 feet below ground surface (bgs) and 8.97 feet bgs, respectively. Groundwater gauging

records were provided to the OCD in the *2018 Groundwater Monitoring Report* on June 14, 2019.

- Distance to Nearest Watercourse: Eagle Creek (or Eagle Draw) is located approximately 130 feet east of the release area. Eagle Creek is an ephemeral watercourse that primarily flows only following rain events. The release did not reach Eagle Creek. There is a containment berm present along the waterway to prevent refinery runoff from reaching Eagle Creek.

- Distance to Nearest Fresh Water Well or Spring: Based on refinery knowledge and New Mexico Office of the State Engineer (NM OSE) online records, the nearest fresh water supply well (RA-01097) to the release location is located within the refinery fence line approximately 730 feet southwest and upgradient of the release location. This well is owned by the refinery and was plugged in 2018. NM OSE online records indicate there are additional potential water wells, or Points of Diversion (PODs), located within 0.5-miles of the release location. A screenshot from the NM OSE ArcGIS Online tool showing all potential wells located within 0.5-miles of the release location and a table summarizing available information for any potential domestic, irrigation, or industrial wells are provided in Attachment B (monitoring and recovery wells were omitted from the table). Most of the potential wells identified within 0.5-miles in the NM OSE online database are monitoring wells. No domestic or irrigation wells are located within 0.5-miles downgradient of the release location. There are no known fresh water springs within 0.5-miles of the release location.

SOIL ASSESSMENT ACTIVITIES

TRC Environmental Corporation (TRC) conducted soil assessment activities on behalf of Navajo on June 24, 2019. A total of 31 discrete grab surface soil samples, designated as Boring-01 through Boring-27, were collected at an approximate spacing of one per 200 square feet (ft^2) over the approximate 6,200-ft^2 release area. Soil samples were collected from 0 to 0.5 feet bgs using a decontaminated shovel. Three field duplicate soil samples were collected for data quality assurance/quality control (QA/QC) purposes. Soil sample locations are shown on Figure 1.

Each soil sample was submitted for the following laboratory analysis, consistent with wastewater releases that occurred at the refinery in 2018 (although cooling tower blowdown water is of better quality than primarily-treated wastewater):

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8260B;

- Total petroleum hydrocarbons (TPH) gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) by Method 8015M;

- Chloride, fluoride, and sulfate by Method 300;

- Phenol by Method 8270C; and
- Arsenic by Method 6010B (secondary analysis of synthetic precipitation leaching procedure [SPLP] conducted on maximum sample results, see below).

SOIL ASSESSMENT RESULTS

Laboratory analytical reports are provided in Attachment C. Soil analytical results are summarized and compared to applicable closure criteria in Table 1. Closure criteria were selected in accordance with 19.15.29 NMAC as follows:

- Analytical results for constituents included in Table 1 of 19.15.29 NMAC (benzene, TPH DRO and GRO, and chloride) are compared to the closure criteria provided in Table 1 of 19.15.29 NMAC for a minimum depth of <50 feet to groundwater below the horizontal boundary of the release.
- Analytical results of constituents that are not included in Table 1 of 19.15.29.12 NMAC are compared to the criteria listed in either: (1) 40 CFR 261.24, if the constituent is included on Table 1 of 40 CFR 261.24(b), or (2) the New Mexico Environment Department (NMED) risk-based soil screening levels (SSLs) with a dilution attenuation factor (DAF) of 20 per NMED *Risk Assessment Guidance for Site Investigations and Remediation, Volume I, Soil Screening Guidance for Human Health Risk* dated in March 2017 (2017 NMED Risk Assessment Guidance).
    - Arsenic is the only constituent that is included on Table 1 of 40 CFR 261.24(b). The criteria included in Table 1 of 40 CFR 261.24(b) consists of the maximum concentration for the toxicity characteristic determined by the toxicity characteristic leaching procedure [TCLP]. TCLP simulates landfill conditions to determine the maximum potential concentration of a constituent in leachate from the soil if placed in a landfill, which is not consistent with in-situ conditions (i.e., soil left in place). To determine the maximum potential concentration of arsenic in leachate from the soil in lieu of TCLP analysis, Navajo utilized the 20x rule (Section 1.2 of Method 1311) for a calculated TCLP result. None of the calculated TCLP values for arsenic exceeded the regulatory value in Table 1 of 40 CFR 261.24(b). Consistent with another approach previously used to determine the maximum potential concentration of arsenic in leachate from the soil under in-situ conditions, the two soil samples with the maximum detected arsenic concentrations were analyzed for arsenic by SPLP (Method 1312) and the analytical results are compared to the groundwater human health standard for arsenic in 20.6.2.3103 NMAC. One of the arsenic SPLP results (0.0172 milligrams per liter [mg/L] in Boring-23) did slightly exceed the groundwater standard of 0.01 mg/L. Although the SPLP result for the one sample exceeds the groundwater standard, the total arsenic result in that sample did not

exceed the New Mexico Environment Department (NMED) Industrial/Occupational Soil Screening Levels (SSLs) and the calculated TCLP result (0.5250 mg/L) was significantly below the toxicity characteristic concentration (5 mg/L). Therefore, Navajo believes that arsenic in surface soil is not a potential risk to refinery workers and does not pose an imminent threat to groundwater quality.

- All other constituents (phenol and fluoride) were compared to the Target Soil Leachate Concentration (Cw) Soil Screening Levels (SSLs, if available) with a DAF of 20 provided in Table A-1 of the February 2019 (Revision 2, June 2019) NMED *Risk Assessment Guidance for Investigations and Remediation, Volume I* (2019 NMED Guidance).

- Sulfate is not listed in Table 1 of 19.15.29.12 NMAC, 40 CFR 261.24, or the 2019 NMED Guidance. Therefore, there is no applicable closure criteria for sulfate.

As highlighted on Table 1, analytical results indicate the following constituents are present in surface soil at concentrations that exceed their respective closure criteria:

- Chloride: Analytical results exceeded the chloride closure criteria of 600 milligrams per kilogram (mg/kg) in 18 samples. Chloride concentrations in the release area ranged significantly from 81.6 mg/kg at Boring-31 to 6,590 mg/kg at Boring-21. The field duplicate results also indicate the chloride concentrations vary significantly within each sample location as the relative percent differences (RPDs) and absolute differences between each parent and duplicate sample do not meet quality acceptance limits (<30% for RPD and <method quantitation limit [MQL] for the absolute difference). The chloride results for samples Boring-03 and Boring -11 should be qualified as estimated above the closure criteria. The RPDs and absolute differences of each parent and duplicate sample pair for all detected analytes are provided in Table 2. The distribution and variable magnitude of the chloride concentrations indicate the presence of elevated chloride concentrations in surface soil is not attributable to the May 2019 cooling tower blowdown release. None of the chloride concentrations exceeded the NMED Industrial/Occupational SSL of 58,400,000 mg/kg (5.84×10^7 mg/kg). NMED does not have any other SSLs established for chloride.

- TPH: Analytical results exceeded the TPH closure criteria of 100 mg/kg in 19 samples. TPH concentrations in the release area ranged significantly from 0.568 mg/kg at Boring-24 (duplicate sample) to 676 mg/kg at Boring-03. The field duplicate results also indicate the TPH concentrations vary significantly within each sample location as the RPDs and absolute differences between each parent and duplicate sample do not meet quality acceptance limits (<30% for RPD and <MQL for the absolute difference). The TPH results for samples Boring-03 and Boring-24 should be qualified as estimated above the closure criteria. The distribution and variable magnitude of the TPH concentrations indicate the presence of TPH in surface soil is not attributable to the May 2019 cooling tower blowdown release. Further, TPH is not

commonly associated with cooling tower blowdown water and no indicator compounds associated with TPH mixtures (BTEX) were detected in exceedance of the closure criteria in surface soil in the release area. None of the TPH concentrations exceeded their respective NMED SSLs:

- Industrial/Occupational SSLs: 500 mg/kg for GRO, 3,000 mg/kg for DRO, and 3,800 mg/kg; and
- Soil-to-Groundwater SSLs (Table 6-4 of 2019 NMED Guidance): 6,930 mg/kg for GRO, 5,720 mg/kg for DRO, and 4,610 mg/kg for MRO.

Chloride and DRO have historically been detected in nearby recovery trench well RW-17A at concentrations that exceed their respective critical groundwater screening levels (CGWSLs), as reported to the OCD in previous annual groundwater monitoring reports and the *2018 Annual Groundwater Monitoring Report* that was submitted on June 14, 2019. The locations of recovery trench RW-17 wells (standpipes) relative to the release area are shown on Figure 1. Due to the variability in the data for these constituents, Navajo will review its sampling procedures and lab performance for future release assessments.

REQUEST FOR DEFERRED CORRECTIVE ACTION

Navajo requests no further action at this time for the May 2019 cooling tower blowdown release under 19.51.29 NMAC based on the following:

- The distribution and variability of TPH and chloride concentrations across the release area indicate they are not attributable to the May 2019 release. The variability of chloride concentrations in soil observed in the release area was consistent with conditions observed at other locations in and outside of the refinery.
- The variable TPH and chloride concentrations that exceed 19.15.29 NMAC closure criteria are significantly less than their respective NMED SSLs, including Industrial/Occupational SSLs and Soil-to-Groundwater SSLs.
- The release area is entirely contained within an active operating facility that is surrounded by a six-foot-tall chain-link, steel post fence topped with three strands of barbed wire. Entry through the fence is only allowed by authorized personnel through limited access gates controlled by either electronic access cards or security guards posted at the main gate 24 hours per day.
- Shallow groundwater monitoring beneath the release area is ongoing. Berms present along Eagle Creek will prevent runoff of any surface soil constituents from reaching Eagle Creek.

As shown on the aerial photograph included on Figure 1, the release area occurred in an area containing sensitive refinery infrastructure. In accordance with Paragraph (2) of Subsection C of

19.15.29.12 NMAC, Navajo requests that corrective action of soil in the release area be deferred until the infrastructure is removed during other operations or the refinery is abandoned, whichever comes first. Navajo believes that the release did not cause an imminent risk to human health, or the environment. Navajo will continue to monitor shallow groundwater immediately beneath the release area (recovery trench RW-17) on a semi-annual basis as part of the facility-wide groundwater monitoring program. A final Form C-141 (Site Assessment/Characterization and Remediation Plan Deferral Request) is included as Attachment A.

If you have any questions or comments regarding this request, please feel free to contact me at 575-746-5487 or Robert Combs at 575-746-5382.

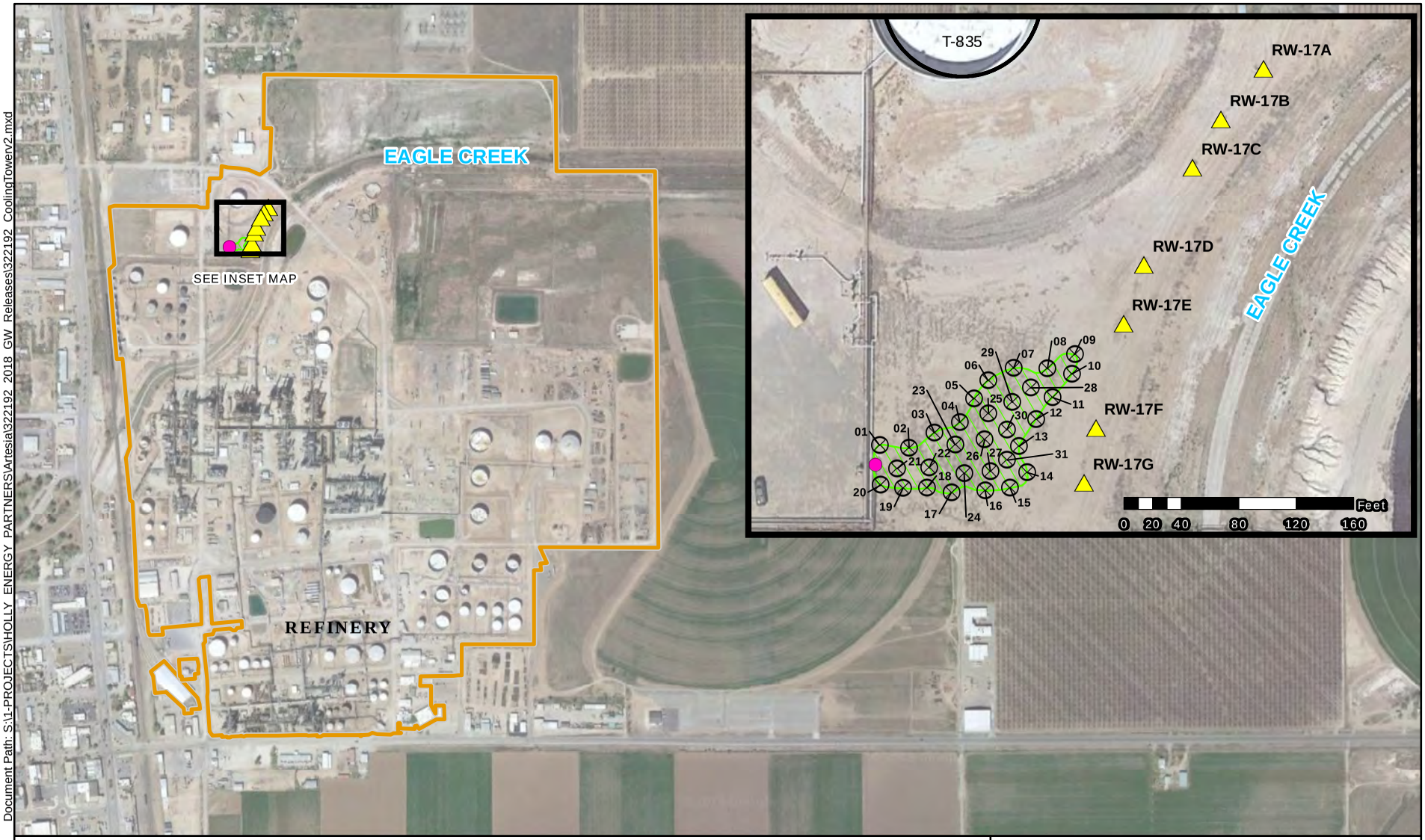
Sincerely,

Scott M. Denton
Environmental Manager
HollyFrontier Navajo Refining LLC

Attachments:
Figure 1 – May 2019 Cooling Tower Blowdown Release Location and Soil Sample Location Map
Table 1 – Surface Soil Analytical Results
Table 2 – Surface Soil Field Duplicate QA/QC Results
Attachment A – Site Assessment/Characterization and Closure Form C-141
Attachment B – Summary of Potential Fresh Water Wells Located within 0.5-miles of the Release Location
Attachment C – Analytical Laboratory Reports

cc: HF: R. Combs, J. Leik
TRC: J. Speer, C. Smith, C. Crain

FIGURE



Document Path: S:\1-PROJECTS\HOLLY ENERGY PARTNERS\Artesia\322192 2018 GW Releases\322192 CoolingTowerv2.mxd

LEGEND

- RECOVERY WELL
- COOLING TOWER BLOWDOWN RELEASE (5/28/2019)
- FENCELINE
- EXTENT OF RELEASE
- SOIL SAMPLE LOCATION
- 01 SOIL SAMPLE NUMBER, CORRELATES WITH ASSOCIATED SAMPLE ID (e.g., BORING-01)

N

0 500 1,000
Feet

SOURCE: BASE MAP AERIAL IMAGE FROM GOOGLE EARTH AND THEIR DATA PARTNERS, 3/12/2016.

MAY 2019 COOLING TOWER BLOWDOWN RELEASE
LOCATION AND SOIL SAMPLE LOCATION MAP
HOLLYFRONTIER NAVAJO REFINING LLC
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

PROJECT NUMBER: 322192	FILE NAME: 322192_CoolingTowerv2
AUTHOR: SRAY	DATE: 8/20/2019

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE
1

Tables

Table 1. Surface Soil Analytical Results, Artesia Cooling Tower Blowdown Release - June 24, 2019
HollyFrontier Navajo Refining LLC, Artesia, New Mexico

Analyte Group:				Total Petroleum Hydrocarbons				Volatile Organic Compounds by Method 8260B					SVOCs	Anions			Metals		
Analyte:				GRO	DRO	MRO	Total	Benzene	Toluene	Ethylbenzene	Total Xylenes	BTEX	Phenol	Chloride	Fluoride	Sulfate	Arsenic	TCLP Arsenic	SPLP Arsenic
Closure Criteria[1]:				--	--	--	100	10	12.1	12.3	154	50	52.3	600	12,000	--	--	5	0.01
Closure Criteria Source[1]:				--	--	--	Table 1, 19.15.29 NMAC	Table 1, 19.15.29 NMAC	--	--	--	Table 1, 19.15.29 NMAC	Cw, DAF 20	Table 1, 19.15.29 NMAC	Cw, DAF 20	--	--	Table 1, 40 CFR 261.24	WQCC GW Human Health
Worker Protection Criteria[2]: (NMED 2019 Guidance)				500	3,000	3,800	--	87.2	61,300	368	4,280	--	275,000	5.84E+07	77,800	--	208	--	--
Units:				mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/L
Sample ID	Depth (ft bgs)	Dup	Date	*Results*															
Boring-01-0-0.5	0-0.5		6/24/2019	0.342	<2.29	1.08 J	1.42	0.00224	0.00640 J	0.00172 B J	<0.00749	0.0104	<0.00990	**3,150**	5.65	11,100	0.980 J	0.0490	--
Boring-02-0-0.5	0-0.5		6/24/2019	<0.0264	35.3 J	180	**215**	0.0128	0.0101	0.00386 J	0.0116	0.384	<0.0156	303	10.2	20,300	3.03	0.1515	--
Boring-03-0-0.5	0-0.5		6/24/2019	<0.0303	<101	676	**676**	0.000854 J	0.00212 J	0.00161 J	0.00646	0.0110	<0.0175	**700**	16.2	12,500	4.55	0.2275	--
Boring-03-0-0.5	0-0.5	**DUP-01**	6/24/2019	0.0857 J	52.8	53.7	**107**	<0.000460	<0.00144	<0.000610	<0.00550	<0.00550	<0.0799	**1,070**	16.1	15,200	4.77	0.2385	--
Boring-04-0-0.5	0-0.5		6/24/2019	<0.0296	24.1 J	123	**147**	0.000732 J	<0.00164	<0.000696	<0.00628	0.000732	<0.0830	332	21.2	8,970	4.17	0.2085	--
Boring-05-0-0.5	0-0.5		6/24/2019	<0.0288	17.9	60.2	78.1	0.000596 J	0.00544 J	0.00145 J	<0.00553	0.00749	<0.0803	**5,390**	14.5	45,200	3.49	0.1745	--
Boring-06-0-0.5	0-0.5		6/24/2019	<0.0276	14.5	65.2	79.7	0.000571 J	0.00166 J	0.00173 J	<0.00596	0.00910	<0.00866	**1,170**	18.1	12,600	2.94	0.147	--
Boring-07-0-0.5	0-0.5		6/24/2019	<0.0268	11.7	52.8	64.5	<0.000513	<0.00160	0.00133 J	<0.00613	0.00133	<0.00857	248	19.5	16,100	2.81	0.1405	--
Boring-08-0-0.5	0-0.5		6/24/2019	<0.0252	29.6	97.2	**127**	0.00192	0.00538 J	0.00138 J	<0.00556	0.00868	<0.00792	381	21.7	17,200	3.04	0.1520	--
Boring-09-0-0.5	0-0.5		6/24/2019	<0.0259	27.2	117	**144**	<0.000478	<0.00149	<0.000633	<0.00571	<0.00571	<0.00830	**1,630**	4.65	23,100	2.80	0.1400	--
Boring-10-0-0.5	0-0.5		6/24/2019	<0.0287	24.6	79.2	**104**	0.00165	0.00297 J	0.00184 J	<0.00640	0.00646	<0.00921	191	17.6	17,700	3.21	0.1605	--
Boring-11-0-0.5	0-0.5		6/24/2019	0.0943 J	9.71 J	25.5	35.3	0.000628 J	0.00181 J	<0.000650	<0.00586	0.00244	<0.00852	**946**	6.77	9,340	2.04	0.1020	--
Boring-11-0-0.5	0-0.5	**DUP-02**	6/24/2019	0.231	2.23 J	0.949 J	3.41	0.000570 J	<0.00152	<0.000643	<0.00580	0.000570	<0.00843	**2,530**	3.19	25,400	1.61	0.0805	--
Boring-12-0-0.5	0-0.5		6/24/2019	<0.0275	17.3	66.2	83.5	<0.000507	0.00209 J	<0.000672	<0.00606	0.00209	<0.00882	168	19.8	13,600	3.51	0.1755	--
Boring-13-0-0.5	0-0.5		6/24/2019	<0.0281	7.87 J	42.4	50.3	<0.000522	<0.00163	<0.000692	<0.00624	<0.00624	<0.00840	**811**	12.7	18,300	3.64	0.1820	--
Boring-14-0-0.5	0-0.5		6/24/2019	<0.0280	6.04	24.4	30.4	<0.000558	<0.00174	<0.000739	<0.00666	<0.00666	<0.00897	**1,280**	13.8	19,100	3.64	0.1820	--
Boring-15-0-0.5	0-0.5		6/24/2019	0.108 J	16.6	54.3	71.0	<0.000480	<0.00150	<0.000636	<0.00573	<0.00573	<0.00834	**2,060**	12.5	18,200	2.44	0.1220	--
Boring-16-0-0.5	0-0.5		6/24/2019	0.109 J	<91.3	434	**434**	<0.000472	<0.00147	<0.000625	<0.00564	<0.00564	<0.00788	270	16.2	16,100	3.16	0.1580	--
Boring-17-0-0.5	0-0.5		6/24/2019	0.117	34.9	149	**184**	<0.000467	<0.00146	<0.000619	<0.00558	<0.00558	<0.00780	393	12.4	16,400	3.50	0.1750	--
Boring-18-0-0.5	0-0.5		6/24/2019	0.170	26.2	72.2	98.6	<0.000469	0.00183 J	0.00227 J	<0.00560	0.00410	<0.00784	514	7.38	20,000	3.17	0.1585	--
Boring-19-0-0.5	0-0.5		6/24/2019	0.198	<1.88	7.11	7.31	<0.000467	<0.00146	<0.000619	0.00558	<0.00558	<0.00812	**1,940**	4.97	17,100	2.51	0.1255	--
Boring-20-0-0.5	0-0.5		6/24/2019	0.216	<21.2	148	**148**	<0.000526	0.00200 J	<0.000696	<0.00628	0.00200	<0.0457	540	11.0	14,900	2.61 J	0.1305	--
Boring-21-0-0.5	0-0.5		6/24/2019	0.324	34.4	157	**192**	<0.000446	<0.00139	<0.000591	<0.00533	<0.00533	<0.00776	**6,590**	6.63	30,800	2.44	0.1220	--
Boring-22-0-0.5	0-0.5		6/24/2019	0.108 J	21.7	103	**125**	<0.000460	<0.00144	<0.000610	<0.00550	<0.00550	<0.00800	**840**	10.8	21,700	2.67	0.1335	--
Boring-23-0-0.5	0-0.5		6/24/2019	0.143	23.0	122	**145**	0.000670	0.00165	<0.000610	<0.00550	0.00232	<0.00800	**615**	12.4	21,000	**10.5**	0.5250	**0.0172**
Boring-24-0-0.5	0-0.5		6/24/2019	0.127	18.3	119	**137**	<0.000453	<0.00142	<0.000600	<0.00541	<0.00541	<0.0787	**619**	17.1	20,900	4.28	0.2140	--
Boring-24-0-0.5	0-0.5	**DUP-03**	6/24/2019	0.127	<1.82	0.441 J	0.568	<0.000451	<0.00141	<0.000598	<0.00539	<0.00539	<0.00784	--	16.8	20,400	4.82	0.2410	--
Boring-25-0-0.5	0-0.5		6/24/2019	0.220	<21.4	28.7	28.9	<0.000531	<0.00166	<0.000704	<0.00635	<0.00635	<0.00923	**4,670**	14.0	21,500	2.35	0.1175	--
Boring-26-0-0.5	0-0.5		6/24/2019	0.124	<18.8	106	**106**	0.000488 J	<0.00146	<0.000618	<0.00557	0.000488	<0.0810	210	19.3	12,600	**5.17**	0.2585	<0.00650
Boring-27-0-0.5	0-0.5		6/24/2019	0.140	21.6 J	121	**143**	0.000579 J	0.00225 J	<0.000647	<0.00583	0.00283	<0.0785	366	15.5	18,700	3.49	0.1745	--
Boring-28-0-0.5	0-0.5		6/24/2019	0.204	75.5	379	**455**	0.00205	0.00561 J	<0.000598	0.00569 J	0.0134	<0.0784	**1,080**	12.7	18,500	3.40	0.1700	--
Boring-29-0-0.5	0-0.5		6/24/2019	0.0879 J	21.3 J	138	**159**	0.000873 J	0.00245 J	0.000980 J	<0.00551	0.00430	<0.0160	**1,300**	15.8	22,000	3.26	0.1630	--
Boring-30-0-0.5	0-0.5		6/24/2019	0.133	<17.9	105	**105**	<0.00420	<0.0131	0.00557	<0.0502	<0.0502	<0.0774	**1,320**	10.4	18,100	4.31	0.2155	--
Boring-31-0-0.5	0-0.5		6/24/2019	0.127	21.2 J	130	**151**	<0.000447	<0.00140	<0.000593	<0.00534	<0.00534	<0.0777	81.6	13.7	14,700	3.45	0.1725	--

Notes:

215	Concentration exceeds applicable Closure Criteria.
0.0172	Two highest detected arsenic concentrations; associated samples analzyed for arsenic SPLP.
<0.00420	Analyte not detected above sample detection limit.

[1] Closure Criteria selected in accordance with Subparagraph (e) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC. See accompanying report for selection rationale.

[2] NMED Risk Assessment Guidance for Site Investigations and Remediation, March 2019 (Revision 2 June 2019)
BTEX: Table A-1, Industrial/Occupational Soil SSL (cancer value if available)
TPH: Table 6-2, Industrial/Construction Worker Exposure (Gasoline for GRO, Diesel #2 for DRO, Unknown Oil for MRO)

-- = Not Analyzed
CFR = Code of Federal Regulations
Cw, DAF 20 = Target Soil Leachate Concentration with a Dilution Attenuation Factor of 20. NMED *Risk Assessment for Investigation and Remediation, February 2019, Revision 2 June 2019*
DRO = Diesel Range Organics
Dup = Duplicate sample
ft bgs = feet below ground surface
GRO = Gasoline Range Organics
J = analyte detected in sample at a concentration above method detection limit, but below reporting detection limit; result is estimated.
mg/kg = milligrams per kilogram
MRO = Motor Oil Range Organics
NMAC = New Mexico Administrative Code
SPLP = Synthetic Precipitation Leaching Procedure
TCLP = toxicity characteristic leaching procedure, determined using "20x rule" (i.e., total result divided by 20).
WQCC GW Human Health = WQCC groundwater standard for human health exposure, 20.6.2.3103.A NMAC

Table 2. Surface Soil Field Duplicate QA/QC Results, Artesia Cooling Tower Blowdown Release - June 24, 2019
HollyFrontier Navajo Refining LLC, Artesia, New Mexico

Sample ID	Analyte	Concentration (mg/kg)		Relative Percent Difference (%)	Absolute Difference (mg/kg)
		Parent Sample	Duplicate Sample		
Boring-03	Total TPH	676	107	**145**	**569**
Boring-11	Total TPH	35.3	3.41	**165**	**32**
Boring-24	Total TPH	137	0.441	**199**	**137**
Boring-03	BTEX	0.0110	0.0055 ND	**67**	**0.0055**
Boring-11	BTEX	0.00244	0.000570	**124**	**0.00187**
Boring-24	BTEX	0.00541 ND	0.00539 ND	--	--
Boring-03	Chloride	700	1070	**42**	**370**
Boring-11	Chloride	946	2530	**91**	**1,584**
Boring-03	Fluoride	16.2	16.1	1	0.10
Boring-11	Fluoride	6.77	3.19	**72**	3.58
Boring-24	Fluoride	17.1	16.8	2	0.30
Boring-03	Sulfate	12,500	15,200	19	2,700
Boring-11	Sulfate	9,340	25,400	**92**	**16,060**
Boring-24	Sulfate	20,900	20,400	2	500
Boring-03	Arsenic	4.55	4.77	5	0.22
Boring-11	Arsenic	2.04	1.61	24	0.43
Boring-24	Arsenic	4.28	4.82	12	0.54

Notes:

145 Does not meet quality acceptance limits (<30% RPD and <absolute difference of MQL)

mg/kg = milligrams per kilogram

MQL = method quantitation limit

ND = analyte not detected above the MQL

% = percent

QA/QC = Quality Assurance/Quality Control

RPD = relative percent difference

ATTACHMENT A

Form C-141 – Site Assessment/Characterization and Remediation Plan Deferral Request

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release? **Recovery well RW-17A in October 2018, installed in recovery trench located adjacent to the release area**	8.97 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse? **Eagle Creek, an ephemeral watercourse that primarily flows only following rain events, is located approx 130 feet east of the release area. The release did not reach Eagle Creek and there is a containment berm present to prevent refinery runoff from reaching Eagle Creek.**	☒ Yes ☐ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data – **Not Applicable**
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs – **Not Applicable**
- ☐ Photographs including date and GIS information – **Not Applicable**
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 8/28/19

email: robert.combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- ☐ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☐ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

☒ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.

☒ Extents of contamination must be fully delineated. **Not practicable to delineate as the impacts observed were not attributable to the release based on the distribution and variability of the concentrations. The release area was visually delineated and physically marked with the placement of pin flags and paint.**

☒ Contamination does not cause an imminent risk to human health, the environment, or groundwater. **The surface soil impacts observed within the release area do not pose an imminent risk to human health or the environment (groundwater or surface water). The release area is entirely contained within a secured and active operating facility. Groundwater monitoring beneath the release area is ongoing and the shallow groundwater is not used for domestic or irrigation purposes. Berms present along Eagle Creek will prevent runoff of surface soil impacts from reaching Eagle Creek.**

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Robert Combs Title: Environmental Specialist

Signature: [signature] Date: 8/28/19

email: robert.combs@hollyfrontier.com Telephone: 575-746-5382

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

ATTACHMENT B

Summary of Potential Fresh Water Wells Location within 0.5-miles of the Release Location

ATTACHMENT B.1 - Summary of Water Wells Identified within 0.5-miles of May 2019 Cooling Tower Blowdown Release

OSE POD Locations

Points of Diversion visible at 1:19,000 with 1,000 features per view

Water Rights Look Up

Find address or place

RA-03262: Domestic 2,250 ft

RA-01973: Domestic 1,520 ft

RA-03282: Domestic, 1,695 ft
RA-03225: Domestic, 1,695 ft

RA-02654: Domestic, 1,270 ft
RA-03662: Domestic, 1,270 ft

RA-05163: Domestic, 865 ft
RA-02496: Domestic, 865 ft
RA-02368: Irrigation, 865 ft
RA-00602: Irrigation, 865 ft

RA-02488: Domestic 1,150 ft

RA-01097: Industrial 730 ft

RA-02224: Domestic 1,705 ft

RA-03890: Municipal 1,790 ft

RA-01892: Industrial, 2,290 ft
RA-00768: Industrial, 2,290 ft

GIS WATERS PODs
- Active
- Pending
- Plugged
- Inactive
- Capped
- Changed Location
- Other

Esri, HERE, iPC | USDA FSA, DigitalGlobe, GeoEye, CN

1:9027
600ft
-104.390 32.855 Degrees

0.5-mile radius around release location

Groundwater flow direction

Release Location

Denotes well ID, type, and approximate distance from release location for each fresh water well source identified within 0.5 miles of release in NM OSE online database

Attachment B.2 - Water Wells Identified within 0.5-miles of May 2019 Cooling Tower Release based on NM OSE POD Locations (Attachment B.1)

POD #	Basin	Install Date	Well Depth (ft)	Primary Purpose/Use	Owner Name	Approx. Distance & Location from Release Location	Comments
RA 01097	Roswell Artesian	NA	NA	Industrial	Navajo Refining Company	730 feet southwest	Plugged in 2018.
RA 02496	Roswell Artesian	NA	NA	Domestic	Clyde Boulden	865 feet north/northeast	Well is not known to exist at this location, only the Navajo industrial well (RA 00602) is present at this location.
RA 02368	Roswell Artesian	10/10/1909	NA	Irrigation	J.F. Lower & W.D. Pike	865 feet north/northeast	Well is not known to exist at this location, only the Navajo industrial well (RA 00602) is present at this location.
RA 00602	Roswell Artesian	NA	NA	Industrial	Navajo Refining Company	865 feet north/northeast	--
RA 05163	Roswell Artesian	NA	NA	Domestic	J.B. Mulcock	865 feet north/northeast	Well is not known to exist at this location, only the Navajo industrial well (RA 00602) is present at this location.
RA 02488	Roswell Artesian	7/27/1957	200	Domestic	C.S. Powell	1,150 feet northeast	Well is not known to exist at this location. The indicated location is within Navajo property.
RA 03662	Roswell Artesian	NA	NA	Domestic	Fred Morgan	1,270 feet northeast	Likely located further north or northwest (NM OSE location data shows on Navajo Property bondary).
RA 02654	Roswell Artesian	8/14/1950	200	Domestic	D.G. Winkles	1,270 feet northeast	Likely located further north or northwest (NM OSE location data shows on Navajo Property bondary).
RA 01973	Roswell Artesian	1942	176	Domestic	J.O. Savoie	1,520 feet north/northeast	--
RA 03225	Roswell Artesian	9/1/1954	100	Domestic	J.C. Goleman	1,695 ft northeast	Well is not known to exist at this location. The indicated location is within Navajo property.
RA 03282	Roswell Artesian	5/18/1954	125	Domestic	Cecil G. Standard	1,695 ft northeast	Well is not known to exist at this location. The indicated location is within Navajo property.
RA 02224	Roswell Artesian	NA	NA	Domestic	H E Flowers	1,705 feet southwest	Well is not known to exist at this location. The indicated location is within Navajo property.
RA 03890	Roswell Artesian	NA	NA	Municipal	City of Artesia	1,790 feet south/southeast	Well was located within the refinery but has been plugged.
RA 03262	Roswell Artesian	9/13/1954	100	Domestic	J.B. Stephens	2,250 feet north/northwest	--

Attachment B.2 - Water Wells Identified within 0.5-miles of May 2019 Cooling Tower Release based on NM OSE POD Locations (Attachment B.1)

POD #	Basin	Install Date	Well Depth (ft)	Primary Purpose/Use	Owner Name	Approx. Distance & Location from Release Location	Comments
RA 00768	Roswell Artesian	NA	NA	Industrial	Navajo Refining Company	2,290 feet southeast	--
RA 01892	Roswell Artesian	12/31/1910	1,180	Industrial	Navajo Refining Company	2,290 feet southeast	--

NA = Not Available

POD = Point of Diversion

Data obtained from New Mexico Office of the State Engineer. Monitoring, observation, and pollution control wells were omitted from this table.

ATTACHMENT C

Analytical Laboratory Reports

(on compact disc)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 12, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1113433
Samples Received:	06/27/2019
Project Number:	322192.2019.0000.
Description:	HFNE-Artesia Cooling Tower Blowdown Release

Report To: Cindy Crain
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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BORING-01-0-0.5 L1113433-01 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 11:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305033	1	07/02/19 13:57	07/02/19 14:15	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303289	49.30967	06/29/19 07:48	06/29/19 11:12	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 15:31	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 01:29	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 11:36	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.05	06/24/19 11:00	07/04/19 01:49	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305796	1.1	06/24/19 11:00	07/03/19 18:58	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	1	07/03/19 08:18	07/05/19 15:18	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1306072	1	07/07/19 23:38	07/09/19 03:26	JNJ	Mt. Juliet, TN

BORING-02-0-0.5 L1113433-02 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 11:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305033	1	07/02/19 13:57	07/02/19 14:15	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303289	9.90099	06/29/19 07:48	06/29/19 11:20	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 16:05	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 02:04	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 11:49	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.08	06/24/19 11:10	07/04/19 02:14	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.4	06/24/19 11:10	07/03/19 12:32	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	10	07/03/19 08:18	07/05/19 18:43	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1306072	2	07/07/19 23:38	07/09/19 06:23	JNJ	Mt. Juliet, TN

BORING-03-0-0.5 L1113433-03 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 11:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305033	1	07/02/19 13:57	07/02/19 14:15	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1303289	9.881423	06/29/19 07:48	06/29/19 11:29	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 16:23	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 02:22	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 11:52	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.11	06/24/19 11:20	07/04/19 02:59	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.02	06/24/19 11:20	07/03/19 12:50	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	50	07/03/19 08:18	07/05/19 18:55	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1306072	2	07/07/19 23:38	07/09/19 08:36	JNJ	Mt. Juliet, TN

BORING-04-0-0.5 L1113433-04 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 11:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305034	1	07/03/19 14:48	07/03/19 14:56	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 16:40	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 02:40	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:01	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.14	06/24/19 11:30	07/04/19 03:23	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.1	06/24/19 11:30	07/03/19 13:09	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	10	07/03/19 08:18	07/05/19 19:33	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	10	07/06/19 08:27	07/08/19 02:26	JF	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

BORING-05-0-0.5 L1113433-05 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 11:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305034	1	07/03/19 14:48	07/03/19 14:56	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 16:58	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	50	07/05/19 11:00	07/06/19 02:57	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:04	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.15	06/24/19 11:40	07/04/19 03:47	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 11:40	07/03/19 13:28	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 17:39	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	10	07/06/19 08:27	07/08/19 02:45	JF	Mt. Juliet, TN

BORING-06-0-0.5 L1113433-06 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 11:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305034	1	07/03/19 14:48	07/03/19 14:56	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 17:33	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 03:15	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:07	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.02	06/24/19 11:50	07/04/19 04:11	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 11:50	07/03/19 13:47	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 16:35	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 20:17	JF	Mt. Juliet, TN

BORING-07-0-0.5 L1113433-07 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 12:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305034	1	07/03/19 14:48	07/03/19 14:56	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 18:44	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 09:45	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:09	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1	06/24/19 12:00	07/04/19 04:36	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.04	06/24/19 12:00	07/03/19 14:05	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 17:52	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 20:36	JF	Mt. Juliet, TN

BORING-08-0-0.5 L1113433-08 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 12:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305034	1	07/03/19 14:48	07/03/19 14:56	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 19:37	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 10:02	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:12	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.02	06/24/19 12:10	07/04/19 05:00	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.02	06/24/19 12:10	07/03/19 14:24	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 18:04	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 20:56	JF	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

BORING-09-0-0.5 L1113433-09 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 12:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305034	1	07/03/19 14:48	07/03/19 14:56	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 19:54	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 18:17	ST	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:15	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1	06/24/19 12:20	07/04/19 05:24	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 12:20	07/03/19 14:43	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 18:17	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 21:54	JF	Mt. Juliet, TN

BORING-10-0-0.5 L1113433-10 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 12:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305034	1	07/03/19 14:48	07/03/19 14:56	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 20:12	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 10:55	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:18	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1	06/24/19 12:30	07/04/19 05:48	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.01	06/24/19 12:30	07/03/19 15:01	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 18:30	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 22:13	JF	Mt. Juliet, TN

BORING-11-0-0.5 L1113433-11 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 12:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305711	1	07/03/19 08:31	07/03/19 08:38	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 20:30	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 11:13	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:21	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1	06/24/19 12:40	07/04/19 06:12	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 12:40	07/03/19 15:20	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 15:44	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 22:33	JF	Mt. Juliet, TN

BORING-12-0-0.5 L1113433-12 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 12:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305711	1	07/03/19 08:31	07/03/19 08:38	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 21:05	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 11:31	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:24	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1	06/24/19 12:50	07/04/19 06:36	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 12:50	07/03/19 15:39	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 16:22	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 22:52	JF	Mt. Juliet, TN

BORING-13-0-0.5 L1113433-13 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 13:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305711	1	07/03/19 08:31	07/03/19 08:38	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 21:58	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 11:48	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:26	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1.07	06/24/19 13:00	07/04/19 07:00	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.08	06/24/19 13:00	07/03/19 15:58	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 17:13	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 23:12	JF	Mt. Juliet, TN

BORING-14-0-0.5 L1113433-14 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 13:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305711	1	07/03/19 08:31	07/03/19 08:38	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 22:15	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 12:06	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:35	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306197	1	06/24/19 13:10	07/04/19 07:25	DWR	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.08	06/24/19 13:10	07/03/19 16:16	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	1	07/03/19 08:18	07/05/19 17:26	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1307893	1	07/08/19 16:20	07/09/19 10:15	JNJ	Mt. Juliet, TN

BORING-15-0-0.5 L1113433-15 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 13:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305711	1	07/03/19 08:31	07/03/19 08:38	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 22:51	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 13:16	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:38	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 13:20	07/04/19 03:19	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 13:20	07/03/19 16:35	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	1	07/03/19 08:18	07/05/19 15:56	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/08/19 02:06	JF	Mt. Juliet, TN

BORING-16-0-0.5 L1113433-16 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 13:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1305711	1	07/03/19 08:31	07/03/19 08:38	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 23:08	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 13:34	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:41	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 13:30	07/04/19 03:39	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.04	06/24/19 13:30	07/03/19 16:54	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	50	07/03/19 08:18	07/05/19 19:08	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/07/19 23:50	JF	Mt. Juliet, TN

BORING-17-0-0.5 L1113433-17 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 13:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 23:26	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	20	07/05/19 11:00	07/06/19 13:52	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:44	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 13:40	07/04/19 04:00	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.04	06/24/19 13:40	07/03/19 17:13	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	10	07/03/19 08:18	07/05/19 19:21	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/08/19 00:10	JF	Mt. Juliet, TN

BORING-18-0-0.5 L1113433-18 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 13:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	1	07/05/19 11:00	07/05/19 23:43	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305712	50	07/05/19 11:00	07/06/19 14:09	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:46	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 13:50	07/04/19 04:20	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1.04	06/24/19 13:50	07/03/19 17:31	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	2	07/03/19 08:18	07/05/19 16:09	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/08/19 00:29	JF	Mt. Juliet, TN

BORING-19-0-0.5 L1113433-19 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 14:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 18:35	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	50	07/05/19 11:39	07/05/19 19:20	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:49	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 14:00	07/04/19 04:41	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 14:00	07/03/19 17:50	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1305634	1	07/03/19 08:18	07/05/19 15:31	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/08/19 00:49	JF	Mt. Juliet, TN

BORING-20-0-0.5 L1113433-20 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 14:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 19:34	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/05/19 20:03	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305412	1	07/02/19 16:51	07/03/19 12:52	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.04	06/24/19 14:10	07/04/19 05:01	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 14:10	07/03/19 18:09	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 14:30	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	5	07/06/19 08:27	07/08/19 03:05	JF	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

BORING-21-0-0.5 L1113433-21 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 14:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 21:01	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	100	07/05/19 11:39	07/05/19 21:15	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 17:01	07/03/19 13:23	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.05	06/24/19 14:20	07/04/19 05:22	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305892	1	06/24/19 14:20	07/03/19 18:27	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 14:43	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/08/19 01:08	JF	Mt. Juliet, TN

BORING-22-0-0.5 L1113433-22 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 14:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 21:30	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	50	07/05/19 11:39	07/05/19 21:44	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 16:58	07/03/19 13:26	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.01	06/24/19 14:30	07/04/19 05:42	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 14:30	07/03/19 16:50	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1307393	10	07/08/19 16:23	07/09/19 23:16	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/08/19 01:28	JF	Mt. Juliet, TN

BORING-23-0-0.5 L1113433-23 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 14:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 21:59	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	50	07/05/19 11:39	07/05/19 22:13	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 16:58	07/03/19 13:34	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.02	06/24/19 14:40	07/04/19 06:03	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 14:40	07/03/19 17:11	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 14:55	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305625	1	07/06/19 08:27	07/08/19 01:47	JF	Mt. Juliet, TN

BORING-24-0-0.5 L1113433-24 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 14:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 22:27	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	50	07/05/19 11:39	07/05/19 22:42	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 16:58	07/03/19 13:37	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.02	06/24/19 14:50	07/04/19 06:23	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 14:50	07/03/19 17:33	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 15:08	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	10	07/06/19 08:19	07/07/19 06:18	LEA	Mt. Juliet, TN

BORING-25-0-0.5 L1113433-25 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 15:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 22:56	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 09:39	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 16:58	07/03/19 13:40	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 15:00	07/04/19 06:44	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 15:00	07/03/19 17:55	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 12:59	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	1	07/06/19 08:19	07/08/19 03:50	JF	Mt. Juliet, TN

BORING-26-0-0.5 L1113433-26 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 15:10 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306081	1	07/04/19 09:40	07/04/19 09:47	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/05/19 23:54	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 00:08	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 16:58	07/03/19 13:43	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 15:10	07/04/19 07:04	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 15:10	07/03/19 18:17	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 15:21	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	10	07/06/19 08:19	07/10/19 21:27	JNJ	Mt. Juliet, TN

BORING-27-0-0.5 L1113433-27 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 15:20 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 00:23	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 00:37	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 16:58	07/03/19 13:45	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 15:20	07/04/19 07:25	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1.08	06/24/19 15:20	07/03/19 18:38	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 15:34	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	10	07/06/19 08:19	07/07/19 07:17	LEA	Mt. Juliet, TN

BORING-28-0-0.5 L1113433-28 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 15:30 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 00:52	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 01:06	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 16:58	07/03/19 13:48	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 15:30	07/04/19 07:45	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 15:30	07/03/19 18:59	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 15:46	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	10	07/06/19 08:19	07/07/19 07:55	LEA	Mt. Juliet, TN

BORING-29-0-0.5 L1113433-29 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 15:40 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 01:20	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 01:35	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 17:55	07/03/19 13:51	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.02	06/24/19 15:40	07/04/19 08:06	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 15:40	07/03/19 19:21	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/08/19 11:36	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	2	07/06/19 08:19	07/08/19 04:57	JF	Mt. Juliet, TN

BORING-30-0-0.5 L1113433-30 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 15:50 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 01:49	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 02:04	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 17:55	07/03/19 13:54	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.08	06/24/19 15:50	07/04/19 08:26	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	9.43	06/24/19 15:50	07/03/19 19:42	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 16:12	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	10	07/06/19 08:19	07/07/19 06:38	LEA	Mt. Juliet, TN

BORING-31-0-0.5 L1113433-31 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 16:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 02:47	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 03:01	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 17:55	07/03/19 13:57	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 16:00	07/04/19 08:47	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 16:00	07/03/19 20:04	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306077	10	07/05/19 09:20	07/07/19 16:24	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	10	07/06/19 08:19	07/07/19 06:57	LEA	Mt. Juliet, TN

DUP-01-0-0.5-6-24-19 L1113433-32 Solid

Collected by: J. Stoffel | Collected date/time: 06/24/19 00:00 | Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 03:16	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	20	07/05/19 11:39	07/06/19 03:30	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 17:55	07/03/19 14:00	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.02	06/24/19 00:00	07/04/19 09:07	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 00:00	07/03/19 20:25	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306412	1	07/04/19 07:09	07/07/19 19:01	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	10	07/06/19 08:19	07/07/19 07:36	LEA	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

DUP-02-0-0.5-6-24-19 L1113433-33 Solid

Collected by: J. Stoffel
Collected date/time: 06/24/19 00:00
Received date/time: 06/27/19 08:00

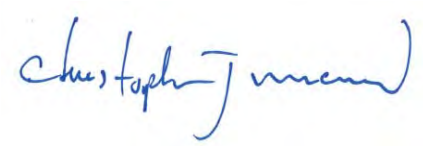
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 03:45	ELN	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	50	07/05/19 11:39	07/06/19 09:53	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 17:55	07/03/19 14:08	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1	06/24/19 00:00	07/04/19 09:28	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 00:00	07/03/19 20:46	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306412	1	07/04/19 07:09	07/07/19 16:52	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	1	07/06/19 08:19	07/08/19 04:12	JF	Mt. Juliet, TN

DUP-03-0-0.5-6-24-19 L1113433-34 Solid

Collected by: J. Stoffel
Collected date/time: 06/24/19 00:00
Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1306082	1	07/03/19 19:21	07/03/19 19:30	KBC	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	1	07/05/19 11:39	07/06/19 04:13	MCG	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1305719	50	07/05/19 11:39	07/06/19 04:28	ELN	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1305235	1	07/02/19 17:55	07/03/19 14:11	TRB	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1306253	1.05	06/24/19 00:00	07/04/19 09:48	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1305896	1	06/24/19 00:00	07/03/19 21:08	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1306412	1	07/04/19 07:09	07/07/19 17:08	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1305626	1	07/06/19 08:19	07/08/19 04:35	JF	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

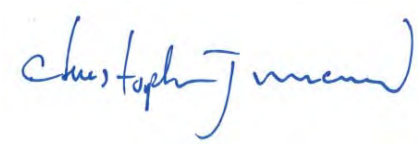
b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 07/12/2019 13:51
Project Name: HFNE-Artesia Cooling Tower Blowdown Release	Laboratory Job Number: L1113433-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303289, WG1305033, WG1305796, WG1305711, WG1305896, WG1305412, WG1305235, WG1306197, WG1305634, WG1305034, WG1306082, WG1306081, WG1306253, WG1305719, WG1305892, WG1305712, WG1306077, WG1305626, WG1306412, WG1305625, WG1307893, WG1306072, WG1307393 and WG1306409

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?	X				
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			2
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?		X			3
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			4
		Were MS/MSD RPDs within laboratory QC limits?		X			5
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?		X			6
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 07/12/2019 13:51
Project Name: HFNE-Artesia Cooling Tower Blowdown Release	Laboratory Job Number: L1113433-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303289, WG1305033, WG1305796, WG1305711, WG1305896, WG1305412, WG1305235, WG1306197, WG1305634, WG1305034, WG1306082, WG1306081, WG1306253, WG1305719, WG1305892, WG1305712, WG1306077, WG1305626, WG1306412, WG1305625, WG1307893, WG1306072, WG1307393 and WG1306409

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 07/12/2019 13:51
Project Name: HFNE-Artesia Cooling Tower Blowdown Release	Laboratory Job Number: L1113433-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303289, WG1305033, WG1305796, WG1305711, WG1305896, WG1305412, WG1305235, WG1306197, WG1305634, WG1305034, WG1306082, WG1306081, WG1306253, WG1305719, WG1305892, WG1305712, WG1306077, WG1305626, WG1306412, WG1305625, WG1307893, WG1306072, WG1307393 and WG1306409

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?	X				
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 07/12/2019 13:51
Project Name: HFNE-Artesia Cooling Tower Blowdown Release	Laboratory Job Number: L1113433-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1303289, WG1305033, WG1305796, WG1305711, WG1305896, WG1305412, WG1305235, WG1306197, WG1305634, WG1305034, WG1306082, WG1306081, WG1306253, WG1305719, WG1305892, WG1305712, WG1306077, WG1305626, WG1306412, WG1305625, WG1307893, WG1306072, WG1307393 and WG1306409

ER #[1]	Description
1	WG1305712 R3428103-4 and 5: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL). WG1305719 R3428032-3 and 4: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
2	8015 WG1305634 o-Terphenyl L1113433-03 and 16: Percent Recovery is outside of established control limits. 8270C / WG1305625 2-Fluorophenol, Nitrobenzene-d5, 2-Fluorobiphenyl L1113433-12 and 2: Percent Recovery is outside of established control limits.
3	8270C WG1305625 2-Chlorophenol: Percent Recovery is outside of established control limits.
4	300.0 WG1305712 Sulfate: Percent Recovery is outside of established control limits. 300.0 WG1305719 Sulfate: Percent Recovery is outside of established control limits. 300.0 WG1303289 Chloride: Percent Recovery is outside of established control limits. 300.0 WG1305712 Fluoride: Percent Recovery is outside of established control limits. 300.0 WG1305719 Fluoride: Percent Recovery is outside of established control limits. 8270C WG1305625 2,4-Dinitrophenol: Percent Recovery is outside of established control limits. 8270C WG1305626 2,4-Dimethylphenol, 4,6-Dinitro-2-methylphenol, 2,4-Dinitrophenol, 4-Nitrophenol, Pentachlorophenol: Percent Recovery is outside of established control limits.
5	8270C WG1305625 2,4-Dinitrophenol: Relative Percent Difference is outside of established control limits. 8270C WG1305626 2,4-Dimethylphenol, 2,4-Dinitrophenol, 4-Nitrophenol: Relative Percent Difference is outside of established control limits.
6	300.0 WG1305719 Chloride: Relative Percent Difference is outside of established control limits.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
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4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	70.2		1	07/02/2019 14:15	WG1305033

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	3150		55.8	10.0	702	49.30967	06/29/2019 11:12	WG1303289
Fluoride	5.65		0.372	1.00	1.42	1	07/05/2019 15:31	WG1305712
Sulfate	11100		16.2	50.0	71.2	20	07/06/2019 01:29	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	0.980	J	0.655	2.00	2.85	1	07/03/2019 11:36	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.342		0.0324	0.100	0.150	1.05	07/04/2019 01:49	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*96.2*				*77.0-120*		*07/04/2019 01:49*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00224		0.000627	0.00100	0.00157	1.1	07/03/2019 18:58	WG1305796
Toluene	0.00640	J	0.00196	0.00500	0.00783	1.1	07/03/2019 18:58	WG1305796
Ethylbenzene	0.00172	B J	0.000830	0.00250	0.00392	1.1	07/03/2019 18:58	WG1305796
Total Xylenes	U		0.00749	0.00650	0.0102	1.1	07/03/2019 18:58	WG1305796
(S) Toluene-d8	*104*				*75.0-131*		*07/03/2019 18:58*	WG1305796
(S) 4-Bromofluorobenzene	*105*				*67.0-138*		*07/03/2019 18:58*	WG1305796
(S) 1,2-Dichloroethane-d4	*100*				*70.0-130*		*07/03/2019 18:58*	WG1305796

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		2.29	4.00	5.70	1	07/05/2019 15:18	WG1305634
C28-C40 Oil Range	1.08	J	0.390	4.00	5.70	1	07/05/2019 15:18	WG1305634
(S) o-Terphenyl	*48.1*				*18.0-148*		*07/05/2019 15:18*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00679	0.333	0.474	1	07/09/2019 03:26	WG1306072
2-Chlorophenol	U		0.0118	0.333	0.474	1	07/09/2019 03:26	WG1306072
2,4-Dichlorophenol	U		0.0106	0.333	0.474	1	07/09/2019 03:26	WG1306072
2,4-Dimethylphenol	U		0.0671	0.333	0.474	1	07/09/2019 03:26	WG1306072
4,6-Dinitro-2-methylphenol	U		0.177	0.333	0.474	1	07/09/2019 03:26	WG1306072
2,4-Dinitrophenol	U		0.140	0.333	0.474	1	07/09/2019 03:26	WG1306072
2-Nitrophenol	U		0.0185	0.333	0.474	1	07/09/2019 03:26	WG1306072
4-Nitrophenol	U		0.0748	0.333	0.474	1	07/09/2019 03:26	WG1306072
Pentachlorophenol	U		0.0684	0.333	0.474	1	07/09/2019 03:26	WG1306072
Phenol	U		0.00990	0.333	0.474	1	07/09/2019 03:26	WG1306072
2,4,6-Trichlorophenol	U		0.0111	0.333	0.474	1	07/09/2019 03:26	WG1306072
(S) 2-Fluorophenol	*77.5*				*12.0-120*		*07/09/2019 03:26*	WG1306072

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*69.9*				*10.0-120*		*07/09/2019 03:26*	WG1306072
(S) Nitrobenzene-d5	*65.7*				*10.0-122*		*07/09/2019 03:26*	WG1306072
(S) 2-Fluorobiphenyl	*67.0*				*15.0-120*		*07/09/2019 03:26*	WG1306072
(S) 2,4,6-Tribromophenol	*73.5*				*10.0-127*		*07/09/2019 03:26*	WG1306072
(S) p-Terphenyl-d14	*65.4*				*10.0-120*		*07/09/2019 03:26*	WG1306072

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.9		1	07/02/2019 14:15	WG1305033

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	303		8.86	10.0	111	9.90099	06/29/2019 11:20	WG1303289
Fluoride	10.2		0.294	1.00	1.13	1	07/05/2019 16:05	WG1305712
Sulfate	20300		12.8	50.0	1130	20	07/06/2019 02:04	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.03		0.518	2.00	2.25	1	07/03/2019 11:49	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0264	0.100	0.122	1.08	07/04/2019 02:14	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*96.5*				*77.0-120*		*07/04/2019 02:14*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.0128		0.000630	0.00100	0.00158	1.4	07/03/2019 12:32	WG1305892
Toluene	0.0101		0.00197	0.00500	0.00788	1.4	07/03/2019 12:32	WG1305892
Ethylbenzene	0.00386	J	0.000835	0.00250	0.00394	1.4	07/03/2019 12:32	WG1305892
Total Xylenes	0.0116		0.00753	0.00650	0.0102	1.4	07/03/2019 12:32	WG1305892
(S) Toluene-d8	*104*				*75.0-131*		*07/03/2019 12:32*	WG1305892
(S) 4-Bromofluorobenzene	*101*				*67.0-138*		*07/03/2019 12:32*	WG1305892
(S) 1,2-Dichloroethane-d4	*103*				*70.0-130*		*07/03/2019 12:32*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	35.3	J	18.1	4.00	45.0	10	07/05/2019 18:43	WG1305634
C28-C40 Oil Range	180		3.08	4.00	45.0	10	07/05/2019 18:43	WG1305634
(S) o-Terphenyl	*56.3*				*18.0-148*		*07/05/2019 18:43*	WG1305634

Sample Narrative:

L1113433-02 WG1305634: Cannot run at lower dilution due to viscosity of extract

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0107	0.333	0.750	2	07/09/2019 06:23	WG1306072
2-Chlorophenol	U		0.0187	0.333	0.750	2	07/09/2019 06:23	WG1306072
2,4-Dichlorophenol	U		0.0168	0.333	0.750	2	07/09/2019 06:23	WG1306072
2,4-Dimethylphenol	U		0.106	0.333	0.750	2	07/09/2019 06:23	WG1306072
4,6-Dinitro-2-methylphenol	U		0.279	0.333	0.750	2	07/09/2019 06:23	WG1306072
2,4-Dinitrophenol	U		0.221	0.333	0.750	2	07/09/2019 06:23	WG1306072
2-Nitrophenol	U		0.0293	0.333	0.750	2	07/09/2019 06:23	WG1306072
4-Nitrophenol	U		0.118	0.333	0.750	2	07/09/2019 06:23	WG1306072
Pentachlorophenol	U		0.108	0.333	0.750	2	07/09/2019 06:23	WG1306072

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0156	0.333	0.750	2	07/09/2019 06:23	WG1306072
2,4,6-Trichlorophenol	U		0.0175	0.333	0.750	2	07/09/2019 06:23	WG1306072
(S) 2-Fluorophenol	*70.1*				*12.0-120*		*07/09/2019 06:23*	WG1306072
(S) Phenol-d5	*65.4*				*10.0-120*		*07/09/2019 06:23*	WG1306072
(S) Nitrobenzene-d5	*59.2*				*10.0-122*		*07/09/2019 06:23*	WG1306072
(S) 2-Fluorobiphenyl	*61.6*				*15.0-120*		*07/09/2019 06:23*	WG1306072
(S) 2,4,6-Tribromophenol	*70.8*				*10.0-127*		*07/09/2019 06:23*	WG1306072
(S) p-Terphenyl-d14	*77.5*				*10.0-120*		*07/09/2019 06:23*	WG1306072

Sample Narrative:

L1113433-02 WG1306072: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.6		1	07/02/2019 14:15	WG1305033

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	700		9.87	10.0	124	9.881423	06/29/2019 11:29	WG1303289
Fluoride	16.2		0.328	1.00	1.26	1	07/05/2019 16:23	WG1305712
Sulfate	12500		14.3	50.0	1260	20	07/06/2019 02:22	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.55		0.578	2.00	2.51	1	07/03/2019 11:52	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0303	0.100	0.139	1.11	07/04/2019 02:59	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*95.0*				*77.0-120*		*07/04/2019 02:59*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000854	J	0.000512	0.00100	0.00128	1.02	07/03/2019 12:50	WG1305892
Toluene	0.00212	J	0.00160	0.00500	0.00641	1.02	07/03/2019 12:50	WG1305892
Ethylbenzene	0.00161	J	0.000679	0.00250	0.00320	1.02	07/03/2019 12:50	WG1305892
Total Xylenes	0.00646	J	0.00612	0.00650	0.00833	1.02	07/03/2019 12:50	WG1305892
(S) Toluene-d8	*112*				*75.0-131*		*07/03/2019 12:50*	WG1305892
(S) 4-Bromofluorobenzene	*99.2*				*67.0-138*		*07/03/2019 12:50*	WG1305892
(S) 1,2-Dichloroethane-d4	*100*				*70.0-130*		*07/03/2019 12:50*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		101	4.00	251	50	07/05/2019 18:55	WG1305634
C28-C40 Oil Range	676		17.2	4.00	251	50	07/05/2019 18:55	WG1305634
(S) o-Terphenyl	*57.3*	J7			*18.0-148*		*07/05/2019 18:55*	WG1305634

Sample Narrative:

L1113433-03 WG1305634: Cannot run at lower dilution due to viscosity of extract

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0120	0.333	0.837	2	07/09/2019 08:36	WG1306072
2-Chlorophenol	U		0.0209	0.333	0.837	2	07/09/2019 08:36	WG1306072
2,4-Dichlorophenol	0.0966	J	0.0187	0.333	0.837	2	07/09/2019 08:36	WG1306072
2,4-Dimethylphenol	U		0.118	0.333	0.837	2	07/09/2019 08:36	WG1306072
4,6-Dinitro-2-methylphenol	U		0.312	0.333	0.837	2	07/09/2019 08:36	WG1306072
2,4-Dinitrophenol	U		0.246	0.333	0.837	2	07/09/2019 08:36	WG1306072
2-Nitrophenol	U		0.0327	0.333	0.837	2	07/09/2019 08:36	WG1306072
4-Nitrophenol	U		0.132	0.333	0.837	2	07/09/2019 08:36	WG1306072
Pentachlorophenol	U		0.121	0.333	0.837	2	07/09/2019 08:36	WG1306072

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0175	0.333	0.837	2	07/09/2019 08:36	WG1306072
2,4,6-Trichlorophenol	U		0.0196	0.333	0.837	2	07/09/2019 08:36	WG1306072
(S) 2-Fluorophenol	*63.4*				*12.0-120*		*07/09/2019 08:36*	WG1306072
(S) Phenol-d5	*60.4*				*10.0-120*		*07/09/2019 08:36*	WG1306072
(S) Nitrobenzene-d5	*60.1*				*10.0-122*		*07/09/2019 08:36*	WG1306072
(S) 2-Fluorobiphenyl	*56.6*				*15.0-120*		*07/09/2019 08:36*	WG1306072
(S) 2,4,6-Tribromophenol	*58.5*				*10.0-127*		*07/09/2019 08:36*	WG1306072
(S) p-Terphenyl-d14	*70.6*				*10.0-120*		*07/09/2019 08:36*	WG1306072

Sample Narrative:

L1113433-03 WG1306072: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.7		1	07/03/2019 14:56	WG1305034

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	332		0.950	10.0	11.9	1	07/05/2019 16:40	WG1305712
Fluoride	21.2		0.312	1.00	1.19	1	07/05/2019 16:40	WG1305712
Sulfate	8970		13.6	50.0	1190	20	07/06/2019 02:40	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.17		0.550	2.00	2.39	1	07/03/2019 12:01	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0296	0.100	0.136	1.14	07/04/2019 03:23	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*96.7*				*77.0-120*		*07/04/2019 03:23*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000732	J	0.000526	0.00100	0.00131	1.1	07/03/2019 13:09	WG1305892
Toluene	U		0.00164	0.00500	0.00657	1.1	07/03/2019 13:09	WG1305892
Ethylbenzene	U		0.000696	0.00250	0.00329	1.1	07/03/2019 13:09	WG1305892
Total Xylenes	U		0.00628	0.00650	0.00854	1.1	07/03/2019 13:09	WG1305892
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 13:09*	WG1305892
(S) 4-Bromofluorobenzene	*95.8*				*67.0-138*		*07/03/2019 13:09*	WG1305892
(S) 1,2-Dichloroethane-d4	*96.2*				*70.0-130*		*07/03/2019 13:09*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	24.1	J	19.2	4.00	47.8	10	07/05/2019 19:33	WG1305634
C28-C40 Oil Range	123		3.27	4.00	47.8	10	07/05/2019 19:33	WG1305634
(S) o-Terphenyl	*46.0*				*18.0-148*		*07/05/2019 19:33*	WG1305634

Sample Narrative:

L1113433-04 WG1305634: Cannot run at lower dilution due to viscosity of extract

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0570	0.333	3.98	10	07/08/2019 02:26	WG1305625
2-Chlorophenol	U	J4	0.0993	0.333	3.98	10	07/08/2019 02:26	WG1305625
2,4-Dichlorophenol	U		0.0891	0.333	3.98	10	07/08/2019 02:26	WG1305625
2,4-Dimethylphenol	U		0.563	0.333	3.98	10	07/08/2019 02:26	WG1305625
4,6-Dinitro-2-methylphenol	U		1.48	0.333	3.98	10	07/08/2019 02:26	WG1305625
2,4-Dinitrophenol	U		1.17	0.333	3.98	10	07/08/2019 02:26	WG1305625
2-Nitrophenol	U		0.155	0.333	3.98	10	07/08/2019 02:26	WG1305625
4-Nitrophenol	U		0.627	0.333	3.98	10	07/08/2019 02:26	WG1305625
Pentachlorophenol	U		0.573	0.333	3.98	10	07/08/2019 02:26	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0830	0.333	3.98	10	07/08/2019 02:26	WG1305625
2,4,6-Trichlorophenol	U		0.0931	0.333	3.98	10	07/08/2019 02:26	WG1305625
(S) 2-Fluorophenol	*93.8*				*12.0-120*		*07/08/2019 02:26*	WG1305625
(S) Phenol-d5	*73.9*				*10.0-120*		*07/08/2019 02:26*	WG1305625
(S) Nitrobenzene-d5	*74.5*				*10.0-122*		*07/08/2019 02:26*	WG1305625
(S) 2-Fluorobiphenyl	*73.0*				*15.0-120*		*07/08/2019 02:26*	WG1305625
(S) 2,4,6-Tribromophenol	*81.8*				*10.0-127*		*07/08/2019 02:26*	WG1305625
(S) p-Terphenyl-d14	*87.9*				*10.0-120*		*07/08/2019 02:26*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.5		1	07/03/2019 14:56	WG1305034

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	5390		46.0	10.0	578	50	07/06/2019 02:57	WG1305712
Fluoride	14.5		0.302	1.00	1.16	1	07/05/2019 16:58	WG1305712
Sulfate	45200		32.9	50.0	2890	50	07/06/2019 02:57	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.49		0.532	2.00	2.31	1	07/03/2019 12:04	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0288	0.100	0.133	1.15	07/04/2019 03:47	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*96.6*				*77.0-120*		*07/04/2019 03:47*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000596	J	0.000462	0.00100	0.00116	1	07/03/2019 13:28	WG1305892
Toluene	0.00544	J	0.00144	0.00500	0.00578	1	07/03/2019 13:28	WG1305892
Ethylbenzene	0.00145	J	0.000613	0.00250	0.00289	1	07/03/2019 13:28	WG1305892
Total Xylenes	U		0.00553	0.00650	0.00751	1	07/03/2019 13:28	WG1305892
(S) Toluene-d8	*110*				*75.0-131*		*07/03/2019 13:28*	WG1305892
(S) 4-Bromofluorobenzene	*96.7*				*67.0-138*		*07/03/2019 13:28*	WG1305892
(S) 1,2-Dichloroethane-d4	*93.2*				*70.0-130*		*07/03/2019 13:28*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	17.9		3.72	4.00	9.25	2	07/05/2019 17:39	WG1305634
C28-C40 Oil Range	60.2		0.633	4.00	9.25	2	07/05/2019 17:39	WG1305634
(S) o-Terphenyl	*43.2*				*18.0-148*		*07/05/2019 17:39*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0551	0.333	3.85	10	07/08/2019 02:45	WG1305625
2-Chlorophenol	U	J4	0.0961	0.333	3.85	10	07/08/2019 02:45	WG1305625
2,4-Dichlorophenol	U		0.0862	0.333	3.85	10	07/08/2019 02:45	WG1305625
2,4-Dimethylphenol	U		0.544	0.333	3.85	10	07/08/2019 02:45	WG1305625
4,6-Dinitro-2-methylphenol	U		1.43	0.333	3.85	10	07/08/2019 02:45	WG1305625
2,4-Dinitrophenol	U		1.13	0.333	3.85	10	07/08/2019 02:45	WG1305625
2-Nitrophenol	U		0.150	0.333	3.85	10	07/08/2019 02:45	WG1305625
4-Nitrophenol	U		0.607	0.333	3.85	10	07/08/2019 02:45	WG1305625
Pentachlorophenol	U		0.555	0.333	3.85	10	07/08/2019 02:45	WG1305625
Phenol	U		0.0803	0.333	3.85	10	07/08/2019 02:45	WG1305625
2,4,6-Trichlorophenol	U		0.0900	0.333	3.85	10	07/08/2019 02:45	WG1305625
(S) 2-Fluorophenol	*97.1*				*12.0-120*		*07/08/2019 02:45*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*82.4*				*10.0-120*		*07/08/2019 02:45*	WG1305625
(S) Nitrobenzene-d5	*76.7*				*10.0-122*		*07/08/2019 02:45*	WG1305625
(S) 2-Fluorobiphenyl	*76.7*				*15.0-120*		*07/08/2019 02:45*	WG1305625
(S) 2,4,6-Tribromophenol	*86.4*				*10.0-127*		*07/08/2019 02:45*	WG1305625
(S) p-Terphenyl-d14	*101*				*10.0-120*		*07/08/2019 02:45*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.2		1	07/03/2019 14:56	WG1305034

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1170		19.8	10.0	249	20	07/06/2019 03:15	WG1305712
Fluoride	18.1		0.325	1.00	1.25	1	07/05/2019 17:33	WG1305712
Sulfate	12600		14.2	50.0	1250	20	07/06/2019 03:15	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.94		0.573	2.00	2.49	1	07/03/2019 12:07	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0276	0.100	0.127	1.02	07/04/2019 04:11	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*97.6*				*77.0-120*		*07/04/2019 04:11*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000571	J	0.000499	0.00100	0.00125	1	07/03/2019 13:47	WG1305892
Toluene	0.00166	J	0.00156	0.00500	0.00623	1	07/03/2019 13:47	WG1305892
Ethylbenzene	0.00173	J	0.000661	0.00250	0.00312	1	07/03/2019 13:47	WG1305892
Total Xylenes	U		0.00596	0.00650	0.00810	1	07/03/2019 13:47	WG1305892
(S) Toluene-d8	*111*				*75.0-131*		*07/03/2019 13:47*	WG1305892
(S) 4-Bromofluorobenzene	*99.2*				*67.0-138*		*07/03/2019 13:47*	WG1305892
(S) 1,2-Dichloroethane-d4	*96.9*				*70.0-130*		*07/03/2019 13:47*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	14.5		4.01	4.00	9.97	2	07/05/2019 16:35	WG1305634
C28-C40 Oil Range	65.2		0.683	4.00	9.97	2	07/05/2019 16:35	WG1305634
(S) o-Terphenyl	*31.2*				*18.0-148*		*07/05/2019 16:35*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00595	0.333	0.415	1	07/07/2019 20:17	WG1305625
2-Chlorophenol	U	J4	0.0104	0.333	0.415	1	07/07/2019 20:17	WG1305625
2,4-Dichlorophenol	U		0.00930	0.333	0.415	1	07/07/2019 20:17	WG1305625
2,4-Dimethylphenol	U		0.0587	0.333	0.415	1	07/07/2019 20:17	WG1305625
4,6-Dinitro-2-methylphenol	U		0.155	0.333	0.415	1	07/07/2019 20:17	WG1305625
2,4-Dinitrophenol	U		0.122	0.333	0.415	1	07/07/2019 20:17	WG1305625
2-Nitrophenol	U		0.0162	0.333	0.415	1	07/07/2019 20:17	WG1305625
4-Nitrophenol	U		0.0654	0.333	0.415	1	07/07/2019 20:17	WG1305625
Pentachlorophenol	U		0.0598	0.333	0.415	1	07/07/2019 20:17	WG1305625
Phenol	U		0.00866	0.333	0.415	1	07/07/2019 20:17	WG1305625
2,4,6-Trichlorophenol	U		0.00971	0.333	0.415	1	07/07/2019 20:17	WG1305625
(S) 2-Fluorophenol	*50.6*				*12.0-120*		*07/07/2019 20:17*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*48.2*				*10.0-120*		*07/07/2019 20:17*	WG1305625
(S) Nitrobenzene-d5	*33.7*				*10.0-122*		*07/07/2019 20:17*	WG1305625
(S) 2-Fluorobiphenyl	*47.6*				*15.0-120*		*07/07/2019 20:17*	WG1305625
(S) 2,4,6-Tribromophenol	*47.9*				*10.0-127*		*07/07/2019 20:17*	WG1305625
(S) p-Terphenyl-d14	*66.0*				*10.0-120*		*07/07/2019 20:17*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.1		1	07/03/2019 14:56	WG1305034

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	248		0.981	10.0	12.3	1	07/05/2019 18:44	WG1305712
Fluoride	19.5	J6	0.322	1.00	1.23	1	07/05/2019 18:44	WG1305712
Sulfate	16100		14.1	50.0	1230	20	07/06/2019 09:45	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.81		0.568	2.00	2.47	1	07/03/2019 12:09	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0268	0.100	0.123	1	07/04/2019 04:36	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*94.2*				*77.0-120*		*07/04/2019 04:36*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000513	0.00100	0.00128	1.04	07/03/2019 14:05	WG1305892
Toluene	U		0.00160	0.00500	0.00642	1.04	07/03/2019 14:05	WG1305892
Ethylbenzene	0.00133	J	0.000680	0.00250	0.00321	1.04	07/03/2019 14:05	WG1305892
Total Xylenes	U		0.00613	0.00650	0.00834	1.04	07/03/2019 14:05	WG1305892
(S) Toluene-d8	*109*				*75.0-131*		*07/03/2019 14:05*	WG1305892
(S) 4-Bromofluorobenzene	*97.5*				*67.0-138*		*07/03/2019 14:05*	WG1305892
(S) 1,2-Dichloroethane-d4	*99.6*				*70.0-130*		*07/03/2019 14:05*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	11.7		3.97	4.00	9.87	2	07/05/2019 17:52	WG1305634
C28-C40 Oil Range	52.8		0.676	4.00	9.87	2	07/05/2019 17:52	WG1305634
(S) o-Terphenyl	*46.4*				*18.0-148*		*07/05/2019 17:52*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00589	0.333	0.411	1	07/07/2019 20:36	WG1305625
2-Chlorophenol	U	J4	0.0103	0.333	0.411	1	07/07/2019 20:36	WG1305625
2,4-Dichlorophenol	U		0.00920	0.333	0.411	1	07/07/2019 20:36	WG1305625
2,4-Dimethylphenol	U		0.0581	0.333	0.411	1	07/07/2019 20:36	WG1305625
4,6-Dinitro-2-methylphenol	U		0.153	0.333	0.411	1	07/07/2019 20:36	WG1305625
2,4-Dinitrophenol	U		0.121	0.333	0.411	1	07/07/2019 20:36	WG1305625
2-Nitrophenol	U		0.0160	0.333	0.411	1	07/07/2019 20:36	WG1305625
4-Nitrophenol	U		0.0648	0.333	0.411	1	07/07/2019 20:36	WG1305625
Pentachlorophenol	U		0.0592	0.333	0.411	1	07/07/2019 20:36	WG1305625
Phenol	U		0.00857	0.333	0.411	1	07/07/2019 20:36	WG1305625
2,4,6-Trichlorophenol	U		0.00961	0.333	0.411	1	07/07/2019 20:36	WG1305625
(S) 2-Fluorophenol	*37.7*				*12.0-120*		*07/07/2019 20:36*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*41.4*				*10.0-120*		*07/07/2019 20:36*	WG1305625
(S) Nitrobenzene-d5	*26.6*				*10.0-122*		*07/07/2019 20:36*	WG1305625
(S) 2-Fluorobiphenyl	*41.9*				*15.0-120*		*07/07/2019 20:36*	WG1305625
(S) 2,4,6-Tribromophenol	*52.8*				*10.0-127*		*07/07/2019 20:36*	WG1305625
(S) p-Terphenyl-d14	*65.9*				*10.0-120*		*07/07/2019 20:36*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.7		1	07/03/2019 14:56	WG1305034

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	381		0.907	10.0	11.4	1	07/05/2019 19:37	WG1305712
Fluoride	21.7		0.298	1.00	1.14	1	07/05/2019 19:37	WG1305712
Sulfate	17200		13.0	50.0	1140	20	07/06/2019 10:02	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.04		0.524	2.00	2.28	1	07/03/2019 12:12	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0252	0.100	0.116	1.02	07/04/2019 05:00	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*95.9*				*77.0-120*		*07/04/2019 05:00*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00192		0.000465	0.00100	0.00116	1.02	07/03/2019 14:24	WG1305892
Toluene	0.00538	J	0.00145	0.00500	0.00581	1.02	07/03/2019 14:24	WG1305892
Ethylbenzene	0.00138	J	0.000616	0.00250	0.00291	1.02	07/03/2019 14:24	WG1305892
Total Xylenes	U		0.00556	0.00650	0.00756	1.02	07/03/2019 14:24	WG1305892
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 14:24*	WG1305892
(S) 4-Bromofluorobenzene	*96.0*				*67.0-138*		*07/03/2019 14:24*	WG1305892
(S) 1,2-Dichloroethane-d4	*104*				*70.0-130*		*07/03/2019 14:24*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	29.6		3.67	4.00	9.12	2	07/05/2019 18:04	WG1305634
C28-C40 Oil Range	97.2		0.625	4.00	9.12	2	07/05/2019 18:04	WG1305634
(S) o-Terphenyl	*61.1*				*18.0-148*		*07/05/2019 18:04*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00544	0.333	0.380	1	07/07/2019 20:56	WG1305625
2-Chlorophenol	U	J4	0.00947	0.333	0.380	1	07/07/2019 20:56	WG1305625
2,4-Dichlorophenol	U		0.00850	0.333	0.380	1	07/07/2019 20:56	WG1305625
2,4-Dimethylphenol	U		0.0537	0.333	0.380	1	07/07/2019 20:56	WG1305625
4,6-Dinitro-2-methylphenol	U		0.141	0.333	0.380	1	07/07/2019 20:56	WG1305625
2,4-Dinitrophenol	U	J3 J6	0.112	0.333	0.380	1	07/07/2019 20:56	WG1305625
2-Nitrophenol	U		0.0148	0.333	0.380	1	07/07/2019 20:56	WG1305625
4-Nitrophenol	U		0.0599	0.333	0.380	1	07/07/2019 20:56	WG1305625
Pentachlorophenol	U		0.0547	0.333	0.380	1	07/07/2019 20:56	WG1305625
Phenol	U		0.00792	0.333	0.380	1	07/07/2019 20:56	WG1305625
2,4,6-Trichlorophenol	U		0.00888	0.333	0.380	1	07/07/2019 20:56	WG1305625
(S) 2-Fluorophenol	*22.4*				*12.0-120*		*07/07/2019 20:56*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*27.8*				*10.0-120*		*07/07/2019 20:56*	WG1305625
(S) Nitrobenzene-d5	*12.7*				*10.0-122*		*07/07/2019 20:56*	WG1305625
(S) 2-Fluorobiphenyl	*22.1*				*15.0-120*		*07/07/2019 20:56*	WG1305625
(S) 2,4,6-Tribromophenol	*47.9*				*10.0-127*		*07/07/2019 20:56*	WG1305625
(S) p-Terphenyl-d14	*60.6*				*10.0-120*		*07/07/2019 20:56*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.7		1	07/03/2019 14:56	WG1305034

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1630		19.0	10.0	239	20	07/06/2019 18:17	WG1305712
Fluoride	4.65		0.312	1.00	1.19	1	07/05/2019 19:54	WG1305712
Sulfate	23100		13.6	50.0	1190	20	07/06/2019 18:17	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.80		0.550	2.00	2.39	1	07/03/2019 12:15	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0259	0.100	0.119	1	07/04/2019 05:24	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*94.9*				*77.0-120*		*07/04/2019 05:24*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000478	0.00100	0.00119	1	07/03/2019 14:43	WG1305892
Toluene	U		0.00149	0.00500	0.00597	1	07/03/2019 14:43	WG1305892
Ethylbenzene	U		0.000633	0.00250	0.00299	1	07/03/2019 14:43	WG1305892
Total Xylenes	U		0.00571	0.00650	0.00777	1	07/03/2019 14:43	WG1305892
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 14:43*	WG1305892
(S) 4-Bromofluorobenzene	*98.2*				*67.0-138*		*07/03/2019 14:43*	WG1305892
(S) 1,2-Dichloroethane-d4	*97.3*				*70.0-130*		*07/03/2019 14:43*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	27.2		3.85	4.00	9.56	2	07/05/2019 18:17	WG1305634
C28-C40 Oil Range	117		0.655	4.00	9.56	2	07/05/2019 18:17	WG1305634
(S) o-Terphenyl	*42.4*				*18.0-148*		*07/05/2019 18:17*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00570	0.333	0.398	1	07/07/2019 21:54	WG1305625
2-Chlorophenol	U	J4	0.00993	0.333	0.398	1	07/07/2019 21:54	WG1305625
2,4-Dichlorophenol	U		0.00891	0.333	0.398	1	07/07/2019 21:54	WG1305625
2,4-Dimethylphenol	U		0.0563	0.333	0.398	1	07/07/2019 21:54	WG1305625
4,6-Dinitro-2-methylphenol	U		0.148	0.333	0.398	1	07/07/2019 21:54	WG1305625
2,4-Dinitrophenol	U		0.117	0.333	0.398	1	07/07/2019 21:54	WG1305625
2-Nitrophenol	U		0.0155	0.333	0.398	1	07/07/2019 21:54	WG1305625
4-Nitrophenol	U		0.0627	0.333	0.398	1	07/07/2019 21:54	WG1305625
Pentachlorophenol	U		0.0573	0.333	0.398	1	07/07/2019 21:54	WG1305625
Phenol	U		0.00830	0.333	0.398	1	07/07/2019 21:54	WG1305625
2,4,6-Trichlorophenol	U		0.00931	0.333	0.398	1	07/07/2019 21:54	WG1305625
(S) 2-Fluorophenol	*51.7*				*12.0-120*		*07/07/2019 21:54*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*47.4*				*10.0-120*		*07/07/2019 21:54*	WG1305625
(S) Nitrobenzene-d5	*35.4*				*10.0-122*		*07/07/2019 21:54*	WG1305625
(S) 2-Fluorobiphenyl	*43.2*				*15.0-120*		*07/07/2019 21:54*	WG1305625
(S) 2,4,6-Tribromophenol	*44.1*				*10.0-127*		*07/07/2019 21:54*	WG1305625
(S) p-Terphenyl-d14	*50.9*				*10.0-120*		*07/07/2019 21:54*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	75.5		1	07/03/2019 14:56	WG1305034

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	191		1.05	10.0	13.2	1	07/05/2019 20:12	WG1305712
Fluoride	17.6		0.346	1.00	1.32	1	07/05/2019 20:12	WG1305712
Sulfate	17700		15.1	50.0	1320	20	07/06/2019 10:55	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.21		0.609	2.00	2.65	1	07/03/2019 12:18	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0287	0.100	0.132	1	07/04/2019 05:48	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*95.9*				*77.0-120*		*07/04/2019 05:48*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00165		0.000535	0.00100	0.00134	1.01	07/03/2019 15:01	WG1305892
Toluene	0.00297	J	0.00167	0.00500	0.00669	1.01	07/03/2019 15:01	WG1305892
Ethylbenzene	0.00184	J	0.000709	0.00250	0.00335	1.01	07/03/2019 15:01	WG1305892
Total Xylenes	U		0.00640	0.00650	0.00870	1.01	07/03/2019 15:01	WG1305892
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 15:01*	WG1305892
(S) 4-Bromofluorobenzene	*95.5*				*67.0-138*		*07/03/2019 15:01*	WG1305892
(S) 1,2-Dichloroethane-d4	*97.4*				*70.0-130*		*07/03/2019 15:01*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	24.6		4.27	4.00	10.6	2	07/05/2019 18:30	WG1305634
C28-C40 Oil Range	79.2		0.726	4.00	10.6	2	07/05/2019 18:30	WG1305634
(S) o-Terphenyl	*35.5*				*18.0-148*		*07/05/2019 18:30*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00632	0.333	0.441	1	07/07/2019 22:13	WG1305625
2-Chlorophenol	U	J4	0.0110	0.333	0.441	1	07/07/2019 22:13	WG1305625
2,4-Dichlorophenol	U		0.00988	0.333	0.441	1	07/07/2019 22:13	WG1305625
2,4-Dimethylphenol	U		0.0624	0.333	0.441	1	07/07/2019 22:13	WG1305625
4,6-Dinitro-2-methylphenol	U		0.164	0.333	0.441	1	07/07/2019 22:13	WG1305625
2,4-Dinitrophenol	U		0.130	0.333	0.441	1	07/07/2019 22:13	WG1305625
2-Nitrophenol	U		0.0172	0.333	0.441	1	07/07/2019 22:13	WG1305625
4-Nitrophenol	U		0.0696	0.333	0.441	1	07/07/2019 22:13	WG1305625
Pentachlorophenol	U		0.0636	0.333	0.441	1	07/07/2019 22:13	WG1305625
Phenol	U		0.00921	0.333	0.441	1	07/07/2019 22:13	WG1305625
2,4,6-Trichlorophenol	U		0.0103	0.333	0.441	1	07/07/2019 22:13	WG1305625
(S) 2-Fluorophenol	*51.4*				*12.0-120*		*07/07/2019 22:13*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*44.5*				*10.0-120*		*07/07/2019 22:13*	WG1305625
(S) Nitrobenzene-d5	*35.2*				*10.0-122*		*07/07/2019 22:13*	WG1305625
(S) 2-Fluorobiphenyl	*41.9*				*15.0-120*		*07/07/2019 22:13*	WG1305625
(S) 2,4,6-Tribromophenol	*45.4*				*10.0-127*		*07/07/2019 22:13*	WG1305625
(S) p-Terphenyl-d14	*50.2*				*10.0-120*		*07/07/2019 22:13*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.6		1	07/03/2019 08:38	WG1305711

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	946		19.5	10.0	245	20	07/06/2019 11:13	WG1305712
Fluoride	6.77		0.320	1.00	1.23	1	07/05/2019 20:30	WG1305712
Sulfate	9340		14.0	50.0	1230	20	07/06/2019 11:13	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.04	J	0.564	2.00	2.45	1	07/03/2019 12:21	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0943	J	0.0266	0.100	0.123	1	07/04/2019 06:12	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*95.6*				*77.0-120*		*07/04/2019 06:12*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000628	J	0.000490	0.00100	0.00123	1	07/03/2019 15:20	WG1305892
Toluene	0.00181	J	0.00153	0.00500	0.00613	1	07/03/2019 15:20	WG1305892
Ethylbenzene	U		0.000650	0.00250	0.00306	1	07/03/2019 15:20	WG1305892
Total Xylenes	U		0.00586	0.00650	0.00797	1	07/03/2019 15:20	WG1305892
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 15:20*	WG1305892
(S) 4-Bromofluorobenzene	*101*				*67.0-138*		*07/03/2019 15:20*	WG1305892
(S) 1,2-Dichloroethane-d4	*97.5*				*70.0-130*		*07/03/2019 15:20*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	9.71	J	3.95	4.00	9.81	2	07/05/2019 15:44	WG1305634
C28-C40 Oil Range	25.5		0.672	4.00	9.81	2	07/05/2019 15:44	WG1305634
(S) o-Terphenyl	*39.7*				*18.0-148*		*07/05/2019 15:44*	WG1305634

Sample Narrative:

L1113433-11 WG1305634: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00585	0.333	0.408	1	07/07/2019 22:33	WG1305625
2-Chlorophenol	U	J4	0.0102	0.333	0.408	1	07/07/2019 22:33	WG1305625
2,4-Dichlorophenol	U		0.00914	0.333	0.408	1	07/07/2019 22:33	WG1305625
2,4-Dimethylphenol	U		0.0577	0.333	0.408	1	07/07/2019 22:33	WG1305625
4,6-Dinitro-2-methylphenol	U		0.152	0.333	0.408	1	07/07/2019 22:33	WG1305625
2,4-Dinitrophenol	U		0.120	0.333	0.408	1	07/07/2019 22:33	WG1305625
2-Nitrophenol	U		0.0159	0.333	0.408	1	07/07/2019 22:33	WG1305625
4-Nitrophenol	U		0.0643	0.333	0.408	1	07/07/2019 22:33	WG1305625
Pentachlorophenol	U		0.0588	0.333	0.408	1	07/07/2019 22:33	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.00852	0.333	0.408	1	07/07/2019 22:33	WG1305625
2,4,6-Trichlorophenol	U		0.00955	0.333	0.408	1	07/07/2019 22:33	WG1305625
(S) 2-Fluorophenol	*42.4*				*12.0-120*		*07/07/2019 22:33*	WG1305625
(S) Phenol-d5	*41.4*				*10.0-120*		*07/07/2019 22:33*	WG1305625
(S) Nitrobenzene-d5	*26.0*				*10.0-122*		*07/07/2019 22:33*	WG1305625
(S) 2-Fluorobiphenyl	*30.2*				*15.0-120*		*07/07/2019 22:33*	WG1305625
(S) 2,4,6-Tribromophenol	*61.6*				*10.0-127*		*07/07/2019 22:33*	WG1305625
(S) p-Terphenyl-d14	*72.5*				*10.0-120*		*07/07/2019 22:33*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.8		1	07/03/2019 08:38	WG1305711

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	168		1.01	10.0	12.7	1	07/05/2019 21:05	WG1305712
Fluoride	19.8		0.331	1.00	1.27	1	07/05/2019 21:05	WG1305712
Sulfate	13600		14.5	50.0	1270	20	07/06/2019 11:31	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.51		0.584	2.00	2.54	1	07/03/2019 12:24	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0275	0.100	0.127	1	07/04/2019 06:36	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*96.1*				*77.0-120*		*07/04/2019 06:36*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000507	0.00100	0.00127	1	07/03/2019 15:39	WG1305892
Toluene	0.00209	J	0.00159	0.00500	0.00634	1	07/03/2019 15:39	WG1305892
Ethylbenzene	U		0.000672	0.00250	0.00317	1	07/03/2019 15:39	WG1305892
Total Xylenes	U		0.00606	0.00650	0.00825	1	07/03/2019 15:39	WG1305892
(S) Toluene-d8	*112*				*75.0-131*		*07/03/2019 15:39*	WG1305892
(S) 4-Bromofluorobenzene	*96.4*				*67.0-138*		*07/03/2019 15:39*	WG1305892
(S) 1,2-Dichloroethane-d4	*95.1*				*70.0-130*		*07/03/2019 15:39*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	17.3		4.08	4.00	10.1	2	07/05/2019 16:22	WG1305634
C28-C40 Oil Range	66.2		0.695	4.00	10.1	2	07/05/2019 16:22	WG1305634
(S) o-Terphenyl	*52.3*				*18.0-148*		*07/05/2019 16:22*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00605	0.333	0.422	1	07/07/2019 22:52	WG1305625
2-Chlorophenol	U	J4	0.0105	0.333	0.422	1	07/07/2019 22:52	WG1305625
2,4-Dichlorophenol	U		0.00946	0.333	0.422	1	07/07/2019 22:52	WG1305625
2,4-Dimethylphenol	U		0.0598	0.333	0.422	1	07/07/2019 22:52	WG1305625
4,6-Dinitro-2-methylphenol	U		0.157	0.333	0.422	1	07/07/2019 22:52	WG1305625
2,4-Dinitrophenol	U		0.124	0.333	0.422	1	07/07/2019 22:52	WG1305625
2-Nitrophenol	U		0.0165	0.333	0.422	1	07/07/2019 22:52	WG1305625
4-Nitrophenol	U		0.0666	0.333	0.422	1	07/07/2019 22:52	WG1305625
Pentachlorophenol	U		0.0609	0.333	0.422	1	07/07/2019 22:52	WG1305625
Phenol	U		0.00882	0.333	0.422	1	07/07/2019 22:52	WG1305625
2,4,6-Trichlorophenol	U		0.00988	0.333	0.422	1	07/07/2019 22:52	WG1305625
(S) 2-Fluorophenol	*10.6*	J2			*12.0-120*		*07/07/2019 22:52*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*14.8*				*10.0-120*		*07/07/2019 22:52*	WG1305625
(S) Nitrobenzene-d5	*9.15*	J2			*10.0-122*		*07/07/2019 22:52*	WG1305625
(S) 2-Fluorobiphenyl	*17.2*				*15.0-120*		*07/07/2019 22:52*	WG1305625
(S) 2,4,6-Tribromophenol	*25.5*				*10.0-127*		*07/07/2019 22:52*	WG1305625
(S) p-Terphenyl-d14	*30.5*				*10.0-120*		*07/07/2019 22:52*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.7		1	07/03/2019 08:38	WG1305711

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	811		0.962	10.0	12.1	1	07/05/2019 21:58	WG1305712
Fluoride	12.7		0.316	1.00	1.21	1	07/05/2019 21:58	WG1305712
Sulfate	18300		13.8	50.0	1210	20	07/06/2019 11:48	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.64		0.556	2.00	2.42	1	07/03/2019 12:26	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0281	0.100	0.129	1.07	07/04/2019 07:00	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*96.4*				*77.0-120*		*07/04/2019 07:00*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000522	0.00100	0.00131	1.08	07/03/2019 15:58	WG1305892
Toluene	U		0.00163	0.00500	0.00653	1.08	07/03/2019 15:58	WG1305892
Ethylbenzene	U		0.000692	0.00250	0.00327	1.08	07/03/2019 15:58	WG1305892
Total Xylenes	U		0.00624	0.00650	0.00849	1.08	07/03/2019 15:58	WG1305892
(S) Toluene-d8	*110*				*75.0-131*		*07/03/2019 15:58*	WG1305892
(S) 4-Bromofluorobenzene	*99.4*				*67.0-138*		*07/03/2019 15:58*	WG1305892
(S) 1,2-Dichloroethane-d4	*96.4*				*70.0-130*		*07/03/2019 15:58*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	7.87	J	3.89	4.00	9.67	2	07/05/2019 17:13	WG1305634
C28-C40 Oil Range	42.4		0.663	4.00	9.67	2	07/05/2019 17:13	WG1305634
(S) o-Terphenyl	*41.9*				*18.0-148*		*07/05/2019 17:13*	WG1305634

Sample Narrative:

L1113433-13 WG1305634: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00577	0.333	0.403	1	07/07/2019 23:12	WG1305625
2-Chlorophenol	U	J4	0.0100	0.333	0.403	1	07/07/2019 23:12	WG1305625
2,4-Dichlorophenol	U		0.00902	0.333	0.403	1	07/07/2019 23:12	WG1305625
2,4-Dimethylphenol	U		0.0570	0.333	0.403	1	07/07/2019 23:12	WG1305625
4,6-Dinitro-2-methylphenol	U		0.150	0.333	0.403	1	07/07/2019 23:12	WG1305625
2,4-Dinitrophenol	U		0.119	0.333	0.403	1	07/07/2019 23:12	WG1305625
2-Nitrophenol	U		0.0157	0.333	0.403	1	07/07/2019 23:12	WG1305625
4-Nitrophenol	U		0.0635	0.333	0.403	1	07/07/2019 23:12	WG1305625
Pentachlorophenol	U		0.0580	0.333	0.403	1	07/07/2019 23:12	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.00840	0.333	0.403	1	07/07/2019 23:12	WG1305625
2,4,6-Trichlorophenol	U		0.00942	0.333	0.403	1	07/07/2019 23:12	WG1305625
(S) 2-Fluorophenol	*28.3*				*12.0-120*		*07/07/2019 23:12*	WG1305625
(S) Phenol-d5	*28.4*				*10.0-120*		*07/07/2019 23:12*	WG1305625
(S) Nitrobenzene-d5	*20.7*				*10.0-122*		*07/07/2019 23:12*	WG1305625
(S) 2-Fluorobiphenyl	*28.5*				*15.0-120*		*07/07/2019 23:12*	WG1305625
(S) 2,4,6-Tribromophenol	*43.0*				*10.0-127*		*07/07/2019 23:12*	WG1305625
(S) p-Terphenyl-d14	*51.4*				*10.0-120*		*07/07/2019 23:12*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.5		1	07/03/2019 08:38	WG1305711

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1280		20.5	10.0	258	20	07/06/2019 12:06	WG1305712
Fluoride	13.8		0.337	1.00	1.29	1	07/05/2019 22:15	WG1305712
Sulfate	19100		14.7	50.0	1290	20	07/06/2019 12:06	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.64		0.594	2.00	2.58	1	07/03/2019 12:35	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0280	0.100	0.129	1	07/04/2019 07:25	WG1306197
(S) a,a,a-Trifluorotoluene(FID)	*96.6*				*77.0-120*		*07/04/2019 07:25*	WG1306197

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000558	0.00100	0.00139	1.08	07/03/2019 16:16	WG1305892
Toluene	U		0.00174	0.00500	0.00697	1.08	07/03/2019 16:16	WG1305892
Ethylbenzene	U		0.000739	0.00250	0.00348	1.08	07/03/2019 16:16	WG1305892
Total Xylenes	U		0.00666	0.00650	0.00906	1.08	07/03/2019 16:16	WG1305892
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 16:16*	WG1305892
(S) 4-Bromofluorobenzene	*96.4*				*67.0-138*		*07/03/2019 16:16*	WG1305892
(S) 1,2-Dichloroethane-d4	*95.9*				*70.0-130*		*07/03/2019 16:16*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	6.04		2.08	4.00	5.16	1	07/05/2019 17:26	WG1305634
C28-C40 Oil Range	24.4		0.354	4.00	5.16	1	07/05/2019 17:26	WG1305634
(S) o-Terphenyl	*41.4*				*18.0-148*		*07/05/2019 17:26*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00616	0.333	0.430	1	07/09/2019 10:15	WG1307893
2-Chlorophenol	U		0.0107	0.333	0.430	1	07/09/2019 10:15	WG1307893
2,4-Dichlorophenol	U		0.00963	0.333	0.430	1	07/09/2019 10:15	WG1307893
2,4-Dimethylphenol	U		0.0608	0.333	0.430	1	07/09/2019 10:15	WG1307893
4,6-Dinitro-2-methylphenol	U		0.160	0.333	0.430	1	07/09/2019 10:15	WG1307893
2,4-Dinitrophenol	U		0.126	0.333	0.430	1	07/09/2019 10:15	WG1307893
2-Nitrophenol	U		0.0168	0.333	0.430	1	07/09/2019 10:15	WG1307893
4-Nitrophenol	U		0.0678	0.333	0.430	1	07/09/2019 10:15	WG1307893
Pentachlorophenol	U		0.0620	0.333	0.430	1	07/09/2019 10:15	WG1307893
Phenol	U		0.00897	0.333	0.430	1	07/09/2019 10:15	WG1307893
2,4,6-Trichlorophenol	U		0.0101	0.333	0.430	1	07/09/2019 10:15	WG1307893
(S) 2-Fluorophenol	*63.5*				*12.0-120*		*07/09/2019 10:15*	WG1307893

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*58.4*				*10.0-120*		*07/09/2019 10:15*	WG1307893
(S) Nitrobenzene-d5	*53.8*				*10.0-122*		*07/09/2019 10:15*	WG1307893
(S) 2-Fluorobiphenyl	*55.0*				*15.0-120*		*07/09/2019 10:15*	WG1307893
(S) 2,4,6-Tribromophenol	*59.5*				*10.0-127*		*07/09/2019 10:15*	WG1307893
(S) p-Terphenyl-d14	*66.1*				*10.0-120*		*07/09/2019 10:15*	WG1307893

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.4		1	07/03/2019 08:38	WG1305711

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	2060		19.1	10.0	240	20	07/06/2019 13:16	WG1305712
Fluoride	12.5		0.313	1.00	1.20	1	07/05/2019 22:51	WG1305712
Sulfate	18200		13.7	50.0	1200	20	07/06/2019 13:16	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.44		0.552	2.00	2.40	1	07/03/2019 12:38	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.108	J	0.0260	0.100	0.120	1	07/04/2019 03:19	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.0*				*77.0-120*		*07/04/2019 03:19*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000480	0.00100	0.00120	1	07/03/2019 16:35	WG1305892
Toluene	U		0.00150	0.00500	0.00600	1	07/03/2019 16:35	WG1305892
Ethylbenzene	U		0.000636	0.00250	0.00300	1	07/03/2019 16:35	WG1305892
Total Xylenes	U		0.00573	0.00650	0.00780	1	07/03/2019 16:35	WG1305892
(S) Toluene-d8	*109*				*75.0-131*		*07/03/2019 16:35*	WG1305892
(S) 4-Bromofluorobenzene	*99.8*				*67.0-138*		*07/03/2019 16:35*	WG1305892
(S) 1,2-Dichloroethane-d4	*97.2*				*70.0-130*		*07/03/2019 16:35*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	16.6		1.93	4.00	4.80	1	07/05/2019 15:56	WG1305634
C28-C40 Oil Range	54.3		0.329	4.00	4.80	1	07/05/2019 15:56	WG1305634
(S) o-Terphenyl	*51.2*				*18.0-148*		*07/05/2019 15:56*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00572	0.333	0.399	1	07/08/2019 02:06	WG1305625
2-Chlorophenol	U	J4	0.00997	0.333	0.399	1	07/08/2019 02:06	WG1305625
2,4-Dichlorophenol	U		0.00895	0.333	0.399	1	07/08/2019 02:06	WG1305625
2,4-Dimethylphenol	U		0.0565	0.333	0.399	1	07/08/2019 02:06	WG1305625
4,6-Dinitro-2-methylphenol	U		0.149	0.333	0.399	1	07/08/2019 02:06	WG1305625
2,4-Dinitrophenol	U		0.118	0.333	0.399	1	07/08/2019 02:06	WG1305625
2-Nitrophenol	U		0.0156	0.333	0.399	1	07/08/2019 02:06	WG1305625
4-Nitrophenol	U		0.0630	0.333	0.399	1	07/08/2019 02:06	WG1305625
Pentachlorophenol	U		0.0576	0.333	0.399	1	07/08/2019 02:06	WG1305625
Phenol	U		0.00834	0.333	0.399	1	07/08/2019 02:06	WG1305625
2,4,6-Trichlorophenol	U		0.00934	0.333	0.399	1	07/08/2019 02:06	WG1305625
(S) 2-Fluorophenol	*59.0*				*12.0-120*		*07/08/2019 02:06*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*51.2*				*10.0-120*		*07/08/2019 02:06*	WG1305625
(S) Nitrobenzene-d5	*44.2*				*10.0-122*		*07/08/2019 02:06*	WG1305625
(S) 2-Fluorobiphenyl	*49.4*				*15.0-120*		*07/08/2019 02:06*	WG1305625
(S) 2,4,6-Tribromophenol	*56.3*				*10.0-127*		*07/08/2019 02:06*	WG1305625
(S) p-Terphenyl-d14	*63.8*				*10.0-120*		*07/08/2019 02:06*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.2		1	07/03/2019 08:38	WG1305711

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	270		0.901	10.0	11.3	1	07/05/2019 23:08	WG1305712
Fluoride	16.2		0.296	1.00	1.13	1	07/05/2019 23:08	WG1305712
Sulfate	16100		12.9	50.0	1130	20	07/06/2019 13:34	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.16		0.521	2.00	2.27	1	07/03/2019 12:41	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.109	J	0.0246	0.100	0.113	1	07/04/2019 03:39	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.0*				*77.0-120*		*07/04/2019 03:39*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000472	0.00100	0.00118	1.04	07/03/2019 16:54	WG1305892
Toluene	U		0.00147	0.00500	0.00590	1.04	07/03/2019 16:54	WG1305892
Ethylbenzene	U		0.000625	0.00250	0.00295	1.04	07/03/2019 16:54	WG1305892
Total Xylenes	U		0.00564	0.00650	0.00766	1.04	07/03/2019 16:54	WG1305892
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 16:54*	WG1305892
(S) 4-Bromofluorobenzene	*101*				*67.0-138*		*07/03/2019 16:54*	WG1305892
(S) 1,2-Dichloroethane-d4	*99.1*				*70.0-130*		*07/03/2019 16:54*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		91.3	4.00	227	50	07/05/2019 19:08	WG1305634
C28-C40 Oil Range	434		15.5	4.00	227	50	07/05/2019 19:08	WG1305634
(S) o-Terphenyl	*62.8*	J7			*18.0-148*		*07/05/2019 19:08*	WG1305634

Sample Narrative:

L1113433-16 WG1305634: Cannot run at lower dilution due to viscosity of extract

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00541	0.333	0.378	1	07/07/2019 23:50	WG1305625
2-Chlorophenol	U	J4	0.00942	0.333	0.378	1	07/07/2019 23:50	WG1305625
2,4-Dichlorophenol	U		0.00846	0.333	0.378	1	07/07/2019 23:50	WG1305625
2,4-Dimethylphenol	U		0.0534	0.333	0.378	1	07/07/2019 23:50	WG1305625
4,6-Dinitro-2-methylphenol	U		0.141	0.333	0.378	1	07/07/2019 23:50	WG1305625
2,4-Dinitrophenol	U		0.111	0.333	0.378	1	07/07/2019 23:50	WG1305625
2-Nitrophenol	U		0.0147	0.333	0.378	1	07/07/2019 23:50	WG1305625
4-Nitrophenol	U		0.0595	0.333	0.378	1	07/07/2019 23:50	WG1305625
Pentachlorophenol	U		0.0544	0.333	0.378	1	07/07/2019 23:50	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.00788	0.333	0.378	1	07/07/2019 23:50	WG1305625
2,4,6-Trichlorophenol	U		0.00883	0.333	0.378	1	07/07/2019 23:50	WG1305625
(S) 2-Fluorophenol	*20.2*				*12.0-120*		*07/07/2019 23:50*	WG1305625
(S) Phenol-d5	*25.2*				*10.0-120*		*07/07/2019 23:50*	WG1305625
(S) Nitrobenzene-d5	*15.5*				*10.0-122*		*07/07/2019 23:50*	WG1305625
(S) 2-Fluorobiphenyl	*27.0*				*15.0-120*		*07/07/2019 23:50*	WG1305625
(S) 2,4,6-Tribromophenol	*46.2*				*10.0-127*		*07/07/2019 23:50*	WG1305625
(S) p-Terphenyl-d14	*56.3*				*10.0-120*		*07/07/2019 23:50*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.1		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	393		0.892	10.0	11.2	1	07/05/2019 23:26	WG1305712
Fluoride	12.4		0.293	1.00	1.12	1	07/05/2019 23:26	WG1305712
Sulfate	16400		12.8	50.0	1120	20	07/06/2019 13:52	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.50		0.516	2.00	2.24	1	07/03/2019 12:44	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.117		0.0244	0.100	0.112	1	07/04/2019 04:00	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.1*				*77.0-120*		*07/04/2019 04:00*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000467	0.00100	0.00117	1.04	07/03/2019 17:13	WG1305892
Toluene	U		0.00146	0.00500	0.00584	1.04	07/03/2019 17:13	WG1305892
Ethylbenzene	U		0.000619	0.00250	0.00292	1.04	07/03/2019 17:13	WG1305892
Total Xylenes	U		0.00558	0.00650	0.00759	1.04	07/03/2019 17:13	WG1305892
(S) Toluene-d8	*113*				*75.0-131*		*07/03/2019 17:13*	WG1305892
(S) 4-Bromofluorobenzene	*95.7*				*67.0-138*		*07/03/2019 17:13*	WG1305892
(S) 1,2-Dichloroethane-d4	*97.8*				*70.0-130*		*07/03/2019 17:13*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	34.9	J	18.1	4.00	44.9	10	07/05/2019 19:21	WG1305634
C28-C40 Oil Range	149		3.08	4.00	44.9	10	07/05/2019 19:21	WG1305634
(S) o-Terphenyl	*52.2*				*18.0-148*		*07/05/2019 19:21*	WG1305634

Sample Narrative:

L1113433-17 WG1305634: Cannot run at lower dilution due to viscosity of extract

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00535	0.333	0.374	1	07/08/2019 00:10	WG1305625
2-Chlorophenol	U	J4	0.00933	0.333	0.374	1	07/08/2019 00:10	WG1305625
2,4-Dichlorophenol	0.00838	J	0.00837	0.333	0.374	1	07/08/2019 00:10	WG1305625
2,4-Dimethylphenol	U		0.0529	0.333	0.374	1	07/08/2019 00:10	WG1305625
4,6-Dinitro-2-methylphenol	U		0.139	0.333	0.374	1	07/08/2019 00:10	WG1305625
2,4-Dinitrophenol	U		0.110	0.333	0.374	1	07/08/2019 00:10	WG1305625
2-Nitrophenol	U		0.0146	0.333	0.374	1	07/08/2019 00:10	WG1305625
4-Nitrophenol	U		0.0589	0.333	0.374	1	07/08/2019 00:10	WG1305625
Pentachlorophenol	U		0.0539	0.333	0.374	1	07/08/2019 00:10	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.00780	0.333	0.374	1	07/08/2019 00:10	WG1305625
2,4,6-Trichlorophenol	U		0.00874	0.333	0.374	1	07/08/2019 00:10	WG1305625
(S) 2-Fluorophenol	*53.8*				*12.0-120*		*07/08/2019 00:10*	WG1305625
(S) Phenol-d5	*50.9*				*10.0-120*		*07/08/2019 00:10*	WG1305625
(S) Nitrobenzene-d5	*39.3*				*10.0-122*		*07/08/2019 00:10*	WG1305625
(S) 2-Fluorobiphenyl	*53.4*				*15.0-120*		*07/08/2019 00:10*	WG1305625
(S) 2,4,6-Tribromophenol	*69.1*				*10.0-127*		*07/08/2019 00:10*	WG1305625
(S) p-Terphenyl-d14	*78.7*				*10.0-120*		*07/08/2019 00:10*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.7		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	514		0.896	10.0	11.3	1	07/05/2019 23:43	WG1305712
Fluoride	7.38		0.294	1.00	1.13	1	07/05/2019 23:43	WG1305712
Sulfate	20000		32.1	50.0	2820	50	07/06/2019 14:09	WG1305712

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.17		0.519	2.00	2.25	1	07/03/2019 12:46	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.170		0.0245	0.100	0.113	1	07/04/2019 04:20	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.8*				*77.0-120*		*07/04/2019 04:20*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000469	0.00100	0.00117	1.04	07/03/2019 17:31	WG1305892
Toluene	0.00183	J	0.00147	0.00500	0.00586	1.04	07/03/2019 17:31	WG1305892
Ethylbenzene	0.00227	J	0.000621	0.00250	0.00293	1.04	07/03/2019 17:31	WG1305892
Total Xylenes	U		0.00560	0.00650	0.00762	1.04	07/03/2019 17:31	WG1305892
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 17:31*	WG1305892
(S) 4-Bromofluorobenzene	*94.3*				*67.0-138*		*07/03/2019 17:31*	WG1305892
(S) 1,2-Dichloroethane-d4	*98.4*				*70.0-130*		*07/03/2019 17:31*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	26.2		3.63	4.00	9.02	2	07/05/2019 16:09	WG1305634
C28-C40 Oil Range	72.7		0.618	4.00	9.02	2	07/05/2019 16:09	WG1305634
(S) o-Terphenyl	*56.3*				*18.0-148*		*07/05/2019 16:09*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00538	0.333	0.375	1	07/08/2019 00:29	WG1305625
2-Chlorophenol	U	J4	0.00937	0.333	0.375	1	07/08/2019 00:29	WG1305625
2,4-Dichlorophenol	U		0.00841	0.333	0.375	1	07/08/2019 00:29	WG1305625
2,4-Dimethylphenol	U		0.0531	0.333	0.375	1	07/08/2019 00:29	WG1305625
4,6-Dinitro-2-methylphenol	U		0.140	0.333	0.375	1	07/08/2019 00:29	WG1305625
2,4-Dinitrophenol	U		0.110	0.333	0.375	1	07/08/2019 00:29	WG1305625
2-Nitrophenol	U		0.0147	0.333	0.375	1	07/08/2019 00:29	WG1305625
4-Nitrophenol	U		0.0592	0.333	0.375	1	07/08/2019 00:29	WG1305625
Pentachlorophenol	U		0.0541	0.333	0.375	1	07/08/2019 00:29	WG1305625
Phenol	U		0.00784	0.333	0.375	1	07/08/2019 00:29	WG1305625
2,4,6-Trichlorophenol	U		0.00878	0.333	0.375	1	07/08/2019 00:29	WG1305625
(S) 2-Fluorophenol	*61.3*				*12.0-120*		*07/08/2019 00:29*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*51.4*				*10.0-120*		*07/08/2019 00:29*	WG1305625
(S) Nitrobenzene-d5	*43.7*				*10.0-122*		*07/08/2019 00:29*	WG1305625
(S) 2-Fluorobiphenyl	*46.7*				*15.0-120*		*07/08/2019 00:29*	WG1305625
(S) 2,4,6-Tribromophenol	*48.9*				*10.0-127*		*07/08/2019 00:29*	WG1305625
(S) p-Terphenyl-d14	*56.3*				*10.0-120*		*07/08/2019 00:29*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.6		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1940		46.4	10.0	584	50	07/05/2019 19:20	WG1305719
Fluoride	4.97	J6	0.305	1.00	1.17	1	07/05/2019 18:35	WG1305719
Sulfate	17100		33.3	50.0	2920	50	07/05/2019 19:20	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.51		0.537	2.00	2.34	1	07/03/2019 12:49	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.198		0.0253	0.100	0.117	1	07/04/2019 04:41	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.3*				*77.0-120*		*07/04/2019 04:41*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000467	0.00100	0.00117	1	07/03/2019 17:50	WG1305892
Toluene	U		0.00146	0.00500	0.00584	1	07/03/2019 17:50	WG1305892
Ethylbenzene	U		0.000619	0.00250	0.00292	1	07/03/2019 17:50	WG1305892
Total Xylenes	U		0.00558	0.00650	0.00759	1	07/03/2019 17:50	WG1305892
(S) Toluene-d8	*109*				*75.0-131*		*07/03/2019 17:50*	WG1305892
(S) 4-Bromofluorobenzene	*97.0*				*67.0-138*		*07/03/2019 17:50*	WG1305892
(S) 1,2-Dichloroethane-d4	*96.0*				*70.0-130*		*07/03/2019 17:50*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.88	4.00	4.67	1	07/05/2019 15:31	WG1305634
C28-C40 Oil Range	7.11		0.320	4.00	4.67	1	07/05/2019 15:31	WG1305634
(S) o-Terphenyl	*27.0*				*18.0-148*		*07/05/2019 15:31*	WG1305634

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00557	0.333	0.389	1	07/08/2019 00:49	WG1305625
2-Chlorophenol	U	J4	0.00970	0.333	0.389	1	07/08/2019 00:49	WG1305625
2,4-Dichlorophenol	U		0.00871	0.333	0.389	1	07/08/2019 00:49	WG1305625
2,4-Dimethylphenol	U		0.0550	0.333	0.389	1	07/08/2019 00:49	WG1305625
4,6-Dinitro-2-methylphenol	U		0.145	0.333	0.389	1	07/08/2019 00:49	WG1305625
2,4-Dinitrophenol	U		0.114	0.333	0.389	1	07/08/2019 00:49	WG1305625
2-Nitrophenol	U		0.0152	0.333	0.389	1	07/08/2019 00:49	WG1305625
4-Nitrophenol	U		0.0613	0.333	0.389	1	07/08/2019 00:49	WG1305625
Pentachlorophenol	U		0.0561	0.333	0.389	1	07/08/2019 00:49	WG1305625
Phenol	U		0.00812	0.333	0.389	1	07/08/2019 00:49	WG1305625
2,4,6-Trichlorophenol	U		0.00910	0.333	0.389	1	07/08/2019 00:49	WG1305625
(S) 2-Fluorophenol	*33.8*				*12.0-120*		*07/08/2019 00:49*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*31.8*				*10.0-120*		*07/08/2019 00:49*	WG1305625
(S) Nitrobenzene-d5	*25.4*				*10.0-122*		*07/08/2019 00:49*	WG1305625
(S) 2-Fluorobiphenyl	*30.2*				*15.0-120*		*07/08/2019 00:49*	WG1305625
(S) 2,4,6-Tribromophenol	*58.2*				*10.0-127*		*07/08/2019 00:49*	WG1305625
(S) p-Terphenyl-d14	*72.3*				*10.0-120*		*07/08/2019 00:49*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	76.1		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	540	J3	1.04	10.0	13.1	1	07/05/2019 19:34	WG1305719
Fluoride	11.0		0.343	1.00	1.31	1	07/05/2019 19:34	WG1305719
Sulfate	14900		15.0	50.0	1310	20	07/05/2019 20:03	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.61	J	0.604	2.00	2.63	1	07/03/2019 12:52	WG1305412

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.216		0.0297	0.100	0.137	1.04	07/04/2019 05:01	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.2*				*77.0-120*		*07/04/2019 05:01*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000526	0.00100	0.00131	1	07/03/2019 18:09	WG1305892
Toluene	0.00200	J	0.00164	0.00500	0.00657	1	07/03/2019 18:09	WG1305892
Ethylbenzene	U		0.000696	0.00250	0.00329	1	07/03/2019 18:09	WG1305892
Total Xylenes	U		0.00628	0.00650	0.00854	1	07/03/2019 18:09	WG1305892
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 18:09*	WG1305892
(S) 4-Bromofluorobenzene	*95.2*				*67.0-138*		*07/03/2019 18:09*	WG1305892
(S) 1,2-Dichloroethane-d4	*95.7*				*70.0-130*		*07/03/2019 18:09*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		21.2	4.00	52.6	10	07/07/2019 14:30	WG1306077
C28-C40 Oil Range	148		3.60	4.00	52.6	10	07/07/2019 14:30	WG1306077
(S) o-Terphenyl	*45.3*				*18.0-148*		*07/07/2019 14:30*	WG1306077

Sample Narrative:

L1113433-20 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0313	0.333	2.19	5	07/08/2019 03:05	WG1305625
2-Chlorophenol	U	J4	0.0546	0.333	2.19	5	07/08/2019 03:05	WG1305625
2,4-Dichlorophenol	U		0.0490	0.333	2.19	5	07/08/2019 03:05	WG1305625
2,4-Dimethylphenol	U		0.309	0.333	2.19	5	07/08/2019 03:05	WG1305625
4,6-Dinitro-2-methylphenol	U		0.815	0.333	2.19	5	07/08/2019 03:05	WG1305625
2,4-Dinitrophenol	U		0.644	0.333	2.19	5	07/08/2019 03:05	WG1305625
2-Nitrophenol	U		0.0854	0.333	2.19	5	07/08/2019 03:05	WG1305625
4-Nitrophenol	U		0.345	0.333	2.19	5	07/08/2019 03:05	WG1305625
Pentachlorophenol	U		0.315	0.333	2.19	5	07/08/2019 03:05	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0457	0.333	2.19	5	07/08/2019 03:05	WG1305625
2,4,6-Trichlorophenol	U		0.0512	0.333	2.19	5	07/08/2019 03:05	WG1305625
(S) 2-Fluorophenol	*32.1*				*12.0-120*		*07/08/2019 03:05*	WG1305625
(S) Phenol-d5	*34.0*				*10.0-120*		*07/08/2019 03:05*	WG1305625
(S) Nitrobenzene-d5	*21.4*				*10.0-122*		*07/08/2019 03:05*	WG1305625
(S) 2-Fluorobiphenyl	*15.7*				*15.0-120*		*07/08/2019 03:05*	WG1305625
(S) 2,4,6-Tribromophenol	*54.1*				*10.0-127*		*07/08/2019 03:05*	WG1305625
(S) p-Terphenyl-d14	*54.2*				*10.0-120*		*07/08/2019 03:05*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.6		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	6590		88.7	10.0	1120	100	07/05/2019 21:15	WG1305719
Fluoride	6.63		0.291	1.00	1.12	1	07/05/2019 21:01	WG1305719
Sulfate	30800		63.6	50.0	5580	100	07/05/2019 21:15	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.44		0.513	2.00	2.23	1	07/03/2019 13:23	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.324		0.0254	0.100	0.117	1.05	07/04/2019 05:22	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.1*				*77.0-120*		*07/04/2019 05:22*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000446	0.00100	0.00112	1	07/03/2019 18:27	WG1305892
Toluene	U		0.00139	0.00500	0.00558	1	07/03/2019 18:27	WG1305892
Ethylbenzene	U		0.000591	0.00250	0.00279	1	07/03/2019 18:27	WG1305892
Total Xylenes	U		0.00533	0.00650	0.00725	1	07/03/2019 18:27	WG1305892
(S) Toluene-d8	*111*				*75.0-131*		*07/03/2019 18:27*	WG1305892
(S) 4-Bromofluorobenzene	*97.6*				*67.0-138*		*07/03/2019 18:27*	WG1305892
(S) 1,2-Dichloroethane-d4	*94.3*				*70.0-130*		*07/03/2019 18:27*	WG1305892

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	34.4	J	18.0	4.00	44.6	10	07/07/2019 14:43	WG1306077
C28-C40 Oil Range	157		3.06	4.00	44.6	10	07/07/2019 14:43	WG1306077
(S) o-Terphenyl	*55.3*				*18.0-148*		*07/07/2019 14:43*	WG1306077

Sample Narrative:

L1113433-21 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00532	0.333	0.372	1	07/08/2019 01:08	WG1305625
2-Chlorophenol	U	J4	0.00927	0.333	0.372	1	07/08/2019 01:08	WG1305625
2,4-Dichlorophenol	U		0.00832	0.333	0.372	1	07/08/2019 01:08	WG1305625
2,4-Dimethylphenol	U		0.0526	0.333	0.372	1	07/08/2019 01:08	WG1305625
4,6-Dinitro-2-methylphenol	U		0.138	0.333	0.372	1	07/08/2019 01:08	WG1305625
2,4-Dinitrophenol	U		0.109	0.333	0.372	1	07/08/2019 01:08	WG1305625
2-Nitrophenol	U		0.0145	0.333	0.372	1	07/08/2019 01:08	WG1305625
4-Nitrophenol	U		0.0586	0.333	0.372	1	07/08/2019 01:08	WG1305625
Pentachlorophenol	U		0.0536	0.333	0.372	1	07/08/2019 01:08	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.00776	0.333	0.372	1	07/08/2019 01:08	WG1305625
2,4,6-Trichlorophenol	U		0.00869	0.333	0.372	1	07/08/2019 01:08	WG1305625
(S) 2-Fluorophenol	*49.7*				*12.0-120*		*07/08/2019 01:08*	WG1305625
(S) Phenol-d5	*47.3*				*10.0-120*		*07/08/2019 01:08*	WG1305625
(S) Nitrobenzene-d5	*36.1*				*10.0-122*		*07/08/2019 01:08*	WG1305625
(S) 2-Fluorobiphenyl	*48.0*				*15.0-120*		*07/08/2019 01:08*	WG1305625
(S) 2,4,6-Tribromophenol	*61.6*				*10.0-127*		*07/08/2019 01:08*	WG1305625
(S) p-Terphenyl-d14	*68.7*				*10.0-120*		*07/08/2019 01:08*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.9		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	840		0.915	10.0	11.5	1	07/05/2019 21:30	WG1305719
Fluoride	10.8		0.300	1.00	1.15	1	07/05/2019 21:30	WG1305719
Sulfate	21700		32.8	50.0	2880	50	07/05/2019 21:44	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.67		0.529	2.00	2.30	1	07/03/2019 13:26	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.108	J	0.0252	0.100	0.116	1.01	07/04/2019 05:42	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.0*				*77.0-120*		*07/04/2019 05:42*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000460	0.00100	0.00115	1	07/03/2019 16:50	WG1305896
Toluene	U		0.00144	0.00500	0.00575	1	07/03/2019 16:50	WG1305896
Ethylbenzene	U		0.000610	0.00250	0.00288	1	07/03/2019 16:50	WG1305896
Total Xylenes	U		0.00550	0.00650	0.00748	1	07/03/2019 16:50	WG1305896
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 16:50*	WG1305896
(S) 4-Bromofluorobenzene	*96.3*				*67.0-138*		*07/03/2019 16:50*	WG1305896
(S) 1,2-Dichloroethane-d4	*96.2*				*70.0-130*		*07/03/2019 16:50*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	21.7	J	18.5	4.00	46.0	10	07/09/2019 23:16	WG1307393
C28-C40 Oil Range	103		3.15	4.00	46.0	10	07/09/2019 23:16	WG1307393
(S) o-Terphenyl	*60.7*				*18.0-148*		*07/09/2019 23:16*	WG1307393

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00549	0.333	0.383	1	07/08/2019 01:28	WG1305625
2-Chlorophenol	U	J4	0.00956	0.333	0.383	1	07/08/2019 01:28	WG1305625
2,4-Dichlorophenol	U		0.00858	0.333	0.383	1	07/08/2019 01:28	WG1305625
2,4-Dimethylphenol	U		0.0542	0.333	0.383	1	07/08/2019 01:28	WG1305625
4,6-Dinitro-2-methylphenol	U		0.143	0.333	0.383	1	07/08/2019 01:28	WG1305625
2,4-Dinitrophenol	U		0.113	0.333	0.383	1	07/08/2019 01:28	WG1305625
2-Nitrophenol	U		0.0150	0.333	0.383	1	07/08/2019 01:28	WG1305625
4-Nitrophenol	U		0.0604	0.333	0.383	1	07/08/2019 01:28	WG1305625
Pentachlorophenol	U		0.0552	0.333	0.383	1	07/08/2019 01:28	WG1305625
Phenol	U		0.00800	0.333	0.383	1	07/08/2019 01:28	WG1305625
2,4,6-Trichlorophenol	U		0.00896	0.333	0.383	1	07/08/2019 01:28	WG1305625
(S) 2-Fluorophenol	*55.0*				*12.0-120*		*07/08/2019 01:28*	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*55.3*				*10.0-120*		*07/08/2019 01:28*	WG1305625
(S) Nitrobenzene-d5	*42.2*				*10.0-122*		*07/08/2019 01:28*	WG1305625
(S) 2-Fluorobiphenyl	*55.7*				*15.0-120*		*07/08/2019 01:28*	WG1305625
(S) 2,4,6-Tribromophenol	*73.0*				*10.0-127*		*07/08/2019 01:28*	WG1305625
(S) p-Terphenyl-d14	*82.2*				*10.0-120*		*07/08/2019 01:28*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.8		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	615		0.916	10.0	11.5	1	07/05/2019 21:59	WG1305719
Fluoride	12.4		0.301	1.00	1.15	1	07/05/2019 21:59	WG1305719
Sulfate	21000		32.8	50.0	2880	50	07/05/2019 22:13	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	10.5		0.530	2.00	2.30	1	07/03/2019 13:34	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.143		0.0255	0.100	0.117	1.02	07/04/2019 06:03	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.0*				*77.0-120*		*07/04/2019 06:03*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000670	J	0.000461	0.00100	0.00115	1	07/03/2019 17:11	WG1305896
Toluene	0.00165	J	0.00144	0.00500	0.00576	1	07/03/2019 17:11	WG1305896
Ethylbenzene	U		0.000610	0.00250	0.00288	1	07/03/2019 17:11	WG1305896
Total Xylenes	U		0.00550	0.00650	0.00748	1	07/03/2019 17:11	WG1305896
(S) Toluene-d8	*105*				*75.0-131*		*07/03/2019 17:11*	WG1305896
(S) 4-Bromofluorobenzene	*96.5*				*67.0-138*		*07/03/2019 17:11*	WG1305896
(S) 1,2-Dichloroethane-d4	*92.4*				*70.0-130*		*07/03/2019 17:11*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	23.0	J	18.5	4.00	46.1	10	07/07/2019 14:55	WG1306077
C28-C40 Oil Range	122		3.15	4.00	46.1	10	07/07/2019 14:55	WG1306077
(S) o-Terphenyl	*42.9*				*18.0-148*		*07/07/2019 14:55*	WG1306077

Sample Narrative:

L1113433-23 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00549	0.333	0.383	1	07/08/2019 01:47	WG1305625
2-Chlorophenol	U	J4	0.00957	0.333	0.383	1	07/08/2019 01:47	WG1305625
2,4-Dichlorophenol	U		0.00859	0.333	0.383	1	07/08/2019 01:47	WG1305625
2,4-Dimethylphenol	U		0.0542	0.333	0.383	1	07/08/2019 01:47	WG1305625
4,6-Dinitro-2-methylphenol	U		0.143	0.333	0.383	1	07/08/2019 01:47	WG1305625
2,4-Dinitrophenol	U		0.113	0.333	0.383	1	07/08/2019 01:47	WG1305625
2-Nitrophenol	U		0.0150	0.333	0.383	1	07/08/2019 01:47	WG1305625
4-Nitrophenol	U		0.0605	0.333	0.383	1	07/08/2019 01:47	WG1305625
Pentachlorophenol	U		0.0553	0.333	0.383	1	07/08/2019 01:47	WG1305625

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.00800	0.333	0.383	1	07/08/2019 01:47	WG1305625
2,4,6-Trichlorophenol	U		0.00897	0.333	0.383	1	07/08/2019 01:47	WG1305625
(S) 2-Fluorophenol	*52.2*				*12.0-120*		*07/08/2019 01:47*	WG1305625
(S) Phenol-d5	*49.8*				*10.0-120*		*07/08/2019 01:47*	WG1305625
(S) Nitrobenzene-d5	*37.1*				*10.0-122*		*07/08/2019 01:47*	WG1305625
(S) 2-Fluorobiphenyl	*48.9*				*15.0-120*		*07/08/2019 01:47*	WG1305625
(S) 2,4,6-Tribromophenol	*60.2*				*10.0-127*		*07/08/2019 01:47*	WG1305625
(S) p-Terphenyl-d14	*67.9*				*10.0-120*		*07/08/2019 01:47*	WG1305625

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.3		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	619		0.900	10.0	11.3	1	07/05/2019 22:27	WG1305719
Fluoride	17.1		0.295	1.00	1.13	1	07/05/2019 22:27	WG1305719
Sulfate	20900		32.3	50.0	2830	50	07/05/2019 22:42	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.28		0.521	2.00	2.26	1	07/03/2019 13:37	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.127		0.0251	0.100	0.115	1.02	07/04/2019 06:23	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.8*				*77.0-120*		*07/04/2019 06:23*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000453	0.00100	0.00113	1	07/03/2019 17:33	WG1305896
Toluene	U		0.00142	0.00500	0.00566	1	07/03/2019 17:33	WG1305896
Ethylbenzene	U		0.000600	0.00250	0.00283	1	07/03/2019 17:33	WG1305896
Total Xylenes	U		0.00541	0.00650	0.00736	1	07/03/2019 17:33	WG1305896
(S) Toluene-d8	*105*				*75.0-131*		*07/03/2019 17:33*	WG1305896
(S) 4-Bromofluorobenzene	*97.0*				*67.0-138*		*07/03/2019 17:33*	WG1305896
(S) 1,2-Dichloroethane-d4	*95.2*				*70.0-130*		*07/03/2019 17:33*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	18.3	J	18.2	4.00	45.3	10	07/07/2019 15:08	WG1306077
C28-C40 Oil Range	119		3.10	4.00	45.3	10	07/07/2019 15:08	WG1306077
(S) o-Terphenyl	*58.3*				*18.0-148*		*07/07/2019 15:08*	WG1306077

Sample Narrative:

L1113433-24 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0540	0.333	3.77	10	07/07/2019 06:18	WG1305626
2-Chlorophenol	U		0.0941	0.333	3.77	10	07/07/2019 06:18	WG1305626
2,4-Dichlorophenol	U		0.0845	0.333	3.77	10	07/07/2019 06:18	WG1305626
2,4-Dimethylphenol	U		0.533	0.333	3.77	10	07/07/2019 06:18	WG1305626
4,6-Dinitro-2-methylphenol	U		1.40	0.333	3.77	10	07/07/2019 06:18	WG1305626
2,4-Dinitrophenol	U		1.11	0.333	3.77	10	07/07/2019 06:18	WG1305626
2-Nitrophenol	U		0.147	0.333	3.77	10	07/07/2019 06:18	WG1305626
4-Nitrophenol	U		0.594	0.333	3.77	10	07/07/2019 06:18	WG1305626
Pentachlorophenol	U		0.543	0.333	3.77	10	07/07/2019 06:18	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0787	0.333	3.77	10	07/07/2019 06:18	WG1305626
2,4,6-Trichlorophenol	U		0.0882	0.333	3.77	10	07/07/2019 06:18	WG1305626
(S) 2-Fluorophenol	*98.6*				*12.0-120*		*07/07/2019 06:18*	WG1305626
(S) Phenol-d5	*90.8*				*10.0-120*		*07/07/2019 06:18*	WG1305626
(S) Nitrobenzene-d5	*82.2*				*10.0-122*		*07/07/2019 06:18*	WG1305626
(S) 2-Fluorobiphenyl	*83.7*				*15.0-120*		*07/07/2019 06:18*	WG1305626
(S) 2,4,6-Tribromophenol	*85.1*				*10.0-127*		*07/07/2019 06:18*	WG1305626
(S) p-Terphenyl-d14	*83.4*				*10.0-120*		*07/07/2019 06:18*	WG1305626

Sample Narrative:

L1113433-24 WG1305626: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	75.3		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	4670		21.1	10.0	265	20	07/06/2019 09:39	WG1305719
Fluoride	14.0		0.346	1.00	1.33	1	07/05/2019 22:56	WG1305719
Sulfate	21500		15.1	50.0	1330	20	07/06/2019 09:39	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.35	J	0.611	2.00	2.65	1	07/03/2019 13:40	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.220		0.0288	0.100	0.133	1	07/04/2019 06:44	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.0*				*77.0-120*		*07/04/2019 06:44*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000531	0.00100	0.00133	1	07/03/2019 17:55	WG1305896
Toluene	U		0.00166	0.00500	0.00664	1	07/03/2019 17:55	WG1305896
Ethylbenzene	U		0.000704	0.00250	0.00332	1	07/03/2019 17:55	WG1305896
Total Xylenes	U		0.00635	0.00650	0.00863	1	07/03/2019 17:55	WG1305896
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 17:55*	WG1305896
(S) 4-Bromofluorobenzene	*97.2*				*67.0-138*		*07/03/2019 17:55*	WG1305896
(S) 1,2-Dichloroethane-d4	*94.8*				*70.0-130*		*07/03/2019 17:55*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		21.4	4.00	53.1	10	07/07/2019 12:59	WG1306077
C28-C40 Oil Range	28.7	J	3.64	4.00	53.1	10	07/07/2019 12:59	WG1306077
(S) o-Terphenyl	*47.8*				*18.0-148*		*07/07/2019 12:59*	WG1306077

Sample Narrative:

L1113433-25 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00633	0.333	0.442	1	07/08/2019 03:50	WG1305626
2-Chlorophenol	U		0.0110	0.333	0.442	1	07/08/2019 03:50	WG1305626
2,4-Dichlorophenol	U		0.00990	0.333	0.442	1	07/08/2019 03:50	WG1305626
2,4-Dimethylphenol	U		0.0625	0.333	0.442	1	07/08/2019 03:50	WG1305626
4,6-Dinitro-2-methylphenol	U		0.165	0.333	0.442	1	07/08/2019 03:50	WG1305626
2,4-Dinitrophenol	U		0.130	0.333	0.442	1	07/08/2019 03:50	WG1305626
2-Nitrophenol	U		0.0173	0.333	0.442	1	07/08/2019 03:50	WG1305626
4-Nitrophenol	U		0.0697	0.333	0.442	1	07/08/2019 03:50	WG1305626
Pentachlorophenol	U		0.0637	0.333	0.442	1	07/08/2019 03:50	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.00923	0.333	0.442	1	07/08/2019 03:50	WG1305626
2,4,6-Trichlorophenol	U		0.0103	0.333	0.442	1	07/08/2019 03:50	WG1305626
(S) 2-Fluorophenol	*50.0*				*12.0-120*		*07/08/2019 03:50*	WG1305626
(S) Phenol-d5	*46.5*				*10.0-120*		*07/08/2019 03:50*	WG1305626
(S) Nitrobenzene-d5	*39.1*				*10.0-122*		*07/08/2019 03:50*	WG1305626
(S) 2-Fluorobiphenyl	*36.1*				*15.0-120*		*07/08/2019 03:50*	WG1305626
(S) 2,4,6-Tribromophenol	*50.3*				*10.0-127*		*07/08/2019 03:50*	WG1305626
(S) p-Terphenyl-d14	*53.0*				*10.0-120*		*07/08/2019 03:50*	WG1305626

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.8		1	07/04/2019 09:47	WG1306081

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	210		0.927	10.0	11.7	1	07/05/2019 23:54	WG1305719
Fluoride	19.3		0.304	1.00	1.17	1	07/05/2019 23:54	WG1305719
Sulfate	12600		13.3	50.0	1170	20	07/06/2019 00:08	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	5.17		0.536	2.00	2.33	1	07/03/2019 13:43	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.124		0.0253	0.100	0.117	1	07/04/2019 07:04	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.5*				*77.0-120*		*07/04/2019 07:04*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000488	J	0.000466	0.00100	0.00117	1	07/03/2019 18:17	WG1305896
Toluene	U		0.00146	0.00500	0.00583	1	07/03/2019 18:17	WG1305896
Ethylbenzene	U		0.000618	0.00250	0.00292	1	07/03/2019 18:17	WG1305896
Total Xylenes	U		0.00557	0.00650	0.00758	1	07/03/2019 18:17	WG1305896
(S) Toluene-d8	*109*				*75.0-131*		*07/03/2019 18:17*	WG1305896
(S) 4-Bromofluorobenzene	*95.8*				*67.0-138*		*07/03/2019 18:17*	WG1305896
(S) 1,2-Dichloroethane-d4	*91.7*				*70.0-130*		*07/03/2019 18:17*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		18.8	4.00	46.6	10	07/07/2019 15:21	WG1306077
C28-C40 Oil Range	106		3.20	4.00	46.6	10	07/07/2019 15:21	WG1306077
(S) o-Terphenyl	*64.8*				*18.0-148*		*07/07/2019 15:21*	WG1306077

Sample Narrative:

L1113433-26 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0556	0.333	3.88	10	07/10/2019 21:27	WG1305626
2-Chlorophenol	U		0.0969	0.333	3.88	10	07/10/2019 21:27	WG1305626
2,4-Dichlorophenol	U		0.0870	0.333	3.88	10	07/10/2019 21:27	WG1305626
2,4-Dimethylphenol	U		0.549	0.333	3.88	10	07/10/2019 21:27	WG1305626
4,6-Dinitro-2-methylphenol	U		1.45	0.333	3.88	10	07/10/2019 21:27	WG1305626
2,4-Dinitrophenol	U		1.14	0.333	3.88	10	07/10/2019 21:27	WG1305626
2-Nitrophenol	U		0.152	0.333	3.88	10	07/10/2019 21:27	WG1305626
4-Nitrophenol	U		0.612	0.333	3.88	10	07/10/2019 21:27	WG1305626
Pentachlorophenol	U		0.560	0.333	3.88	10	07/10/2019 21:27	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0810	0.333	3.88	10	07/10/2019 21:27	WG1305626
2,4,6-Trichlorophenol	U		0.0908	0.333	3.88	10	07/10/2019 21:27	WG1305626
(S) 2-Fluorophenol	*64.4*				*12.0-120*		*07/10/2019 21:27*	WG1305626
(S) Phenol-d5	*67.9*				*10.0-120*		*07/10/2019 21:27*	WG1305626
(S) Nitrobenzene-d5	*52.5*				*10.0-122*		*07/10/2019 21:27*	WG1305626
(S) 2-Fluorobiphenyl	*54.0*				*15.0-120*		*07/10/2019 21:27*	WG1305626
(S) 2,4,6-Tribromophenol	*80.6*				*10.0-127*		*07/10/2019 21:27*	WG1305626
(S) p-Terphenyl-d14	*87.3*				*10.0-120*		*07/10/2019 21:27*	WG1305626

Sample Narrative:

L1113433-26 WG1305626: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.5		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	366		0.898	10.0	11.3	1	07/06/2019 00:23	WG1305719
Fluoride	15.5		0.295	1.00	1.13	1	07/06/2019 00:23	WG1305719
Sulfate	18700		12.9	50.0	1130	20	07/06/2019 00:37	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.49		0.520	2.00	2.26	1	07/03/2019 13:45	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.140		0.0245	0.100	0.113	1	07/04/2019 07:25	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.6*				*77.0-120*		*07/04/2019 07:25*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000579	J	0.000488	0.00100	0.00122	1.08	07/03/2019 18:38	WG1305896
Toluene	0.00225	J	0.00153	0.00500	0.00610	1.08	07/03/2019 18:38	WG1305896
Ethylbenzene	U		0.000647	0.00250	0.00305	1.08	07/03/2019 18:38	WG1305896
Total Xylenes	U		0.00583	0.00650	0.00793	1.08	07/03/2019 18:38	WG1305896
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 18:38*	WG1305896
(S) 4-Bromofluorobenzene	*95.1*				*67.0-138*		*07/03/2019 18:38*	WG1305896
(S) 1,2-Dichloroethane-d4	*91.1*				*70.0-130*		*07/03/2019 18:38*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	21.6	J	18.2	4.00	45.2	10	07/07/2019 15:34	WG1306077
C28-C40 Oil Range	121		3.10	4.00	45.2	10	07/07/2019 15:34	WG1306077
(S) o-Terphenyl	*63.7*				*18.0-148*		*07/07/2019 15:34*	WG1306077

Sample Narrative:

L1113433-27 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0539	0.333	3.76	10	07/07/2019 07:17	WG1305626
2-Chlorophenol	U		0.0939	0.333	3.76	10	07/07/2019 07:17	WG1305626
2,4-Dichlorophenol	U		0.0843	0.333	3.76	10	07/07/2019 07:17	WG1305626
2,4-Dimethylphenol	U		0.532	0.333	3.76	10	07/07/2019 07:17	WG1305626
4,6-Dinitro-2-methylphenol	U		1.40	0.333	3.76	10	07/07/2019 07:17	WG1305626
2,4-Dinitrophenol	U		1.11	0.333	3.76	10	07/07/2019 07:17	WG1305626
2-Nitrophenol	U		0.147	0.333	3.76	10	07/07/2019 07:17	WG1305626
4-Nitrophenol	U		0.593	0.333	3.76	10	07/07/2019 07:17	WG1305626
Pentachlorophenol	U		0.542	0.333	3.76	10	07/07/2019 07:17	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0785	0.333	3.76	10	07/07/2019 07:17	WG1305626
2,4,6-Trichlorophenol	U		0.0880	0.333	3.76	10	07/07/2019 07:17	WG1305626
(S) 2-Fluorophenol	*86.6*				*12.0-120*		*07/07/2019 07:17*	WG1305626
(S) Phenol-d5	*83.4*				*10.0-120*		*07/07/2019 07:17*	WG1305626
(S) Nitrobenzene-d5	*70.7*				*10.0-122*		*07/07/2019 07:17*	WG1305626
(S) 2-Fluorobiphenyl	*77.0*				*15.0-120*		*07/07/2019 07:17*	WG1305626
(S) 2,4,6-Tribromophenol	*95.5*				*10.0-127*		*07/07/2019 07:17*	WG1305626
(S) p-Terphenyl-d14	*89.7*				*10.0-120*		*07/07/2019 07:17*	WG1305626

Sample Narrative:

L1113433-27 WG1305626: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.6		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1080		0.897	10.0	11.3	1	07/06/2019 00:52	WG1305719
Fluoride	12.7		0.294	1.00	1.13	1	07/06/2019 00:52	WG1305719
Sulfate	18500		12.9	50.0	1130	20	07/06/2019 01:06	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.40		0.519	2.00	2.26	1	07/03/2019 13:48	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.204		0.0245	0.100	0.113	1	07/04/2019 07:45	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.3*				*77.0-120*		*07/04/2019 07:45*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.00205		0.000451	0.00100	0.00113	1	07/03/2019 18:59	WG1305896
Toluene	0.00561	J	0.00141	0.00500	0.00564	1	07/03/2019 18:59	WG1305896
Ethylbenzene	U		0.000598	0.00250	0.00282	1	07/03/2019 18:59	WG1305896
Total Xylenes	0.00569	J	0.00539	0.00650	0.00733	1	07/03/2019 18:59	WG1305896
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 18:59*	WG1305896
(S) 4-Bromofluorobenzene	*97.5*				*67.0-138*		*07/03/2019 18:59*	WG1305896
(S) 1,2-Dichloroethane-d4	*95.4*				*70.0-130*		*07/03/2019 18:59*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	75.5		18.2	4.00	45.1	10	07/07/2019 15:46	WG1306077
C28-C40 Oil Range	379		3.09	4.00	45.1	10	07/07/2019 15:46	WG1306077
(S) o-Terphenyl	*54.3*				*18.0-148*		*07/07/2019 15:46*	WG1306077

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0538	0.333	3.76	10	07/07/2019 07:55	WG1305626
2-Chlorophenol	U		0.0937	0.333	3.76	10	07/07/2019 07:55	WG1305626
2,4-Dichlorophenol	U		0.0842	0.333	3.76	10	07/07/2019 07:55	WG1305626
2,4-Dimethylphenol	U		0.531	0.333	3.76	10	07/07/2019 07:55	WG1305626
4,6-Dinitro-2-methylphenol	U		1.40	0.333	3.76	10	07/07/2019 07:55	WG1305626
2,4-Dinitrophenol	U		1.11	0.333	3.76	10	07/07/2019 07:55	WG1305626
2-Nitrophenol	U		0.147	0.333	3.76	10	07/07/2019 07:55	WG1305626
4-Nitrophenol	U		0.592	0.333	3.76	10	07/07/2019 07:55	WG1305626
Pentachlorophenol	U		0.541	0.333	3.76	10	07/07/2019 07:55	WG1305626
Phenol	U		0.0784	0.333	3.76	10	07/07/2019 07:55	WG1305626
2,4,6-Trichlorophenol	U		0.0879	0.333	3.76	10	07/07/2019 07:55	WG1305626
(S) 2-Fluorophenol	*101*				*12.0-120*		*07/07/2019 07:55*	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*87.1*				*10.0-120*		*07/07/2019 07:55*	WG1305626
(S) Nitrobenzene-d5	*82.3*				*10.0-122*		*07/07/2019 07:55*	WG1305626
(S) 2-Fluorobiphenyl	*80.7*				*15.0-120*		*07/07/2019 07:55*	WG1305626
(S) 2,4,6-Tribromophenol	*90.5*				*10.0-127*		*07/07/2019 07:55*	WG1305626
(S) p-Terphenyl-d14	*82.6*				*10.0-120*		*07/07/2019 07:55*	WG1305626

Sample Narrative:

L1113433-28 WG1305626: Dilution due to matrix impact during extract concentration procedureDilution due to matrix impact du

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.7		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1300		18.3	10.0	231	20	07/06/2019 01:35	WG1305719
Fluoride	15.8		0.301	1.00	1.15	1	07/06/2019 01:20	WG1305719
Sulfate	22000		13.1	50.0	1150	20	07/06/2019 01:35	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.26		0.530	2.00	2.31	1	07/03/2019 13:51	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0879	J	0.0255	0.100	0.118	1.02	07/04/2019 08:06	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*91.2*				*77.0-120*		*07/04/2019 08:06*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000873	J	0.000461	0.00100	0.00115	1	07/03/2019 19:21	WG1305896
Toluene	0.00245	J	0.00144	0.00500	0.00576	1	07/03/2019 19:21	WG1305896
Ethylbenzene	0.000980	J	0.000611	0.00250	0.00288	1	07/03/2019 19:21	WG1305896
Total Xylenes	U		0.00551	0.00650	0.00749	1	07/03/2019 19:21	WG1305896
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 19:21*	WG1305896
(S) 4-Bromofluorobenzene	*93.9*				*67.0-138*		*07/03/2019 19:21*	WG1305896
(S) 1,2-Dichloroethane-d4	*93.0*				*70.0-130*		*07/03/2019 19:21*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	21.3	J	18.6	4.00	46.1	10	07/08/2019 11:36	WG1306077
C28-C40 Oil Range	138		3.16	4.00	46.1	10	07/08/2019 11:36	WG1306077
(S) o-Terphenyl	*56.8*				*18.0-148*		*07/08/2019 11:36*	WG1306077

Sample Narrative:

L1113433-29 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0110	0.333	0.768	2	07/08/2019 04:57	WG1305626
2-Chlorophenol	U		0.0192	0.333	0.768	2	07/08/2019 04:57	WG1305626
2,4-Dichlorophenol	U		0.0172	0.333	0.768	2	07/08/2019 04:57	WG1305626
2,4-Dimethylphenol	U		0.109	0.333	0.768	2	07/08/2019 04:57	WG1305626
4,6-Dinitro-2-methylphenol	U		0.286	0.333	0.768	2	07/08/2019 04:57	WG1305626
2,4-Dinitrophenol	U		0.226	0.333	0.768	2	07/08/2019 04:57	WG1305626
2-Nitrophenol	U		0.0300	0.333	0.768	2	07/08/2019 04:57	WG1305626
4-Nitrophenol	U		0.121	0.333	0.768	2	07/08/2019 04:57	WG1305626
Pentachlorophenol	U		0.111	0.333	0.768	2	07/08/2019 04:57	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0160	0.333	0.768	2	07/08/2019 04:57	WG1305626
2,4,6-Trichlorophenol	U		0.0180	0.333	0.768	2	07/08/2019 04:57	WG1305626
(S) 2-Fluorophenol	*87.4*				*12.0-120*		*07/08/2019 04:57*	WG1305626
(S) Phenol-d5	*89.4*				*10.0-120*		*07/08/2019 04:57*	WG1305626
(S) Nitrobenzene-d5	*67.2*				*10.0-122*		*07/08/2019 04:57*	WG1305626
(S) 2-Fluorobiphenyl	*67.8*				*15.0-120*		*07/08/2019 04:57*	WG1305626
(S) 2,4,6-Tribromophenol	*90.6*				*10.0-127*		*07/08/2019 04:57*	WG1305626
(S) p-Terphenyl-d14	*88.7*				*10.0-120*		*07/08/2019 04:57*	WG1305626

Sample Narrative:

L1113433-29 WG1305626: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.8		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1320		17.7	10.0	223	20	07/06/2019 02:04	WG1305719
Fluoride	10.4		0.291	1.00	1.11	1	07/06/2019 01:49	WG1305719
Sulfate	18100		12.7	50.0	1110	20	07/06/2019 02:04	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.31		0.512	2.00	2.23	1	07/03/2019 13:54	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.133		0.0261	0.100	0.120	1.08	07/04/2019 08:26	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.6*				*77.0-120*		*07/04/2019 08:26*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.00420	0.00100	0.0105	9.43	07/03/2019 19:42	WG1305896
Toluene	U		0.0131	0.00500	0.0525	9.43	07/03/2019 19:42	WG1305896
Ethylbenzene	U		0.00557	0.00250	0.0263	9.43	07/03/2019 19:42	WG1305896
Total Xylenes	U		0.0502	0.00650	0.0683	9.43	07/03/2019 19:42	WG1305896
(S) Toluene-d8	*108*				*75.0-131*		*07/03/2019 19:42*	WG1305896
(S) 4-Bromofluorobenzene	*94.2*				*67.0-138*		*07/03/2019 19:42*	WG1305896
(S) 1,2-Dichloroethane-d4	*95.4*				*70.0-130*		*07/03/2019 19:42*	WG1305896

Sample Narrative:

L1113433-30 WG1305896: This is minimum dilution due to dilution factor.

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		17.9	4.00	44.6	10	07/07/2019 16:12	WG1306077
C28-C40 Oil Range	105		3.05	4.00	44.6	10	07/07/2019 16:12	WG1306077
(S) o-Terphenyl	*53.0*				*18.0-148*		*07/07/2019 16:12*	WG1306077

Sample Narrative:

L1113433-30 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0531	0.333	3.71	10	07/07/2019 06:38	WG1305626
2-Chlorophenol	U		0.0926	0.333	3.71	10	07/07/2019 06:38	WG1305626
2,4-Dichlorophenol	U		0.0831	0.333	3.71	10	07/07/2019 06:38	WG1305626
2,4-Dimethylphenol	U		0.525	0.333	3.71	10	07/07/2019 06:38	WG1305626
4,6-Dinitro-2-methylphenol	U		1.38	0.333	3.71	10	07/07/2019 06:38	WG1305626
2,4-Dinitrophenol	U		1.09	0.333	3.71	10	07/07/2019 06:38	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
2-Nitrophenol	U		0.145	0.333	3.71	10	07/07/2019 06:38	WG1305626
4-Nitrophenol	U		0.585	0.333	3.71	10	07/07/2019 06:38	WG1305626
Pentachlorophenol	U		0.535	0.333	3.71	10	07/07/2019 06:38	WG1305626
Phenol	U		0.0774	0.333	3.71	10	07/07/2019 06:38	WG1305626
2,4,6-Trichlorophenol	U		0.0868	0.333	3.71	10	07/07/2019 06:38	WG1305626
(S) 2-Fluorophenol	*108*				*12.0-120*		*07/07/2019 06:38*	WG1305626
(S) Phenol-d5	*91.7*				*10.0-120*		*07/07/2019 06:38*	WG1305626
(S) Nitrobenzene-d5	*82.2*				*10.0-122*		*07/07/2019 06:38*	WG1305626
(S) 2-Fluorobiphenyl	*89.9*				*15.0-120*		*07/07/2019 06:38*	WG1305626
(S) 2,4,6-Tribromophenol	*85.7*				*10.0-127*		*07/07/2019 06:38*	WG1305626
(S) p-Terphenyl-d14	*83.7*				*10.0-120*		*07/07/2019 06:38*	WG1305626

Sample Narrative:

L1113433-30 WG1305626: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.4		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	81.6		0.889	10.0	11.2	1	07/06/2019 02:47	WG1305719
Fluoride	13.7		0.292	1.00	1.12	1	07/06/2019 02:47	WG1305719
Sulfate	14700		12.7	50.0	1120	20	07/06/2019 03:01	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.45		0.514	2.00	2.24	1	07/03/2019 13:57	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.127		0.0243	0.100	0.112	1	07/04/2019 08:47	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.6*				*77.0-120*		*07/04/2019 08:47*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000447	0.00100	0.00112	1	07/03/2019 20:04	WG1305896
Toluene	U		0.00140	0.00500	0.00559	1	07/03/2019 20:04	WG1305896
Ethylbenzene	U		0.000593	0.00250	0.00279	1	07/03/2019 20:04	WG1305896
Total Xylenes	U		0.00534	0.00650	0.00727	1	07/03/2019 20:04	WG1305896
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 20:04*	WG1305896
(S) 4-Bromofluorobenzene	*95.1*				*67.0-138*		*07/03/2019 20:04*	WG1305896
(S) 1,2-Dichloroethane-d4	*93.9*				*70.0-130*		*07/03/2019 20:04*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	21.2	J	18.0	4.00	44.7	10	07/07/2019 16:24	WG1306077
C28-C40 Oil Range	130		3.06	4.00	44.7	10	07/07/2019 16:24	WG1306077
(S) o-Terphenyl	*62.3*				*18.0-148*		*07/07/2019 16:24*	WG1306077

Sample Narrative:

L1113433-31 WG1306077: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0533	0.333	3.72	10	07/07/2019 06:57	WG1305626
2-Chlorophenol	U		0.0929	0.333	3.72	10	07/07/2019 06:57	WG1305626
2,4-Dichlorophenol	U		0.0834	0.333	3.72	10	07/07/2019 06:57	WG1305626
2,4-Dimethylphenol	U		0.527	0.333	3.72	10	07/07/2019 06:57	WG1305626
4,6-Dinitro-2-methylphenol	U		1.39	0.333	3.72	10	07/07/2019 06:57	WG1305626
2,4-Dinitrophenol	U		1.10	0.333	3.72	10	07/07/2019 06:57	WG1305626
2-Nitrophenol	U		0.145	0.333	3.72	10	07/07/2019 06:57	WG1305626
4-Nitrophenol	U		0.587	0.333	3.72	10	07/07/2019 06:57	WG1305626
Pentachlorophenol	U		0.537	0.333	3.72	10	07/07/2019 06:57	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
Phenol	U		0.0777	0.333	3.72	10	07/07/2019 06:57	WG1305626
2,4,6-Trichlorophenol	U		0.0871	0.333	3.72	10	07/07/2019 06:57	WG1305626
(S) 2-Fluorophenol	*96.1*				*12.0-120*		*07/07/2019 06:57*	WG1305626
(S) Phenol-d5	*87.7*				*10.0-120*		*07/07/2019 06:57*	WG1305626
(S) Nitrobenzene-d5	*80.5*				*10.0-122*		*07/07/2019 06:57*	WG1305626
(S) 2-Fluorobiphenyl	*82.0*				*15.0-120*		*07/07/2019 06:57*	WG1305626
(S) 2,4,6-Tribromophenol	*92.5*				*10.0-127*		*07/07/2019 06:57*	WG1305626
(S) p-Terphenyl-d14	*78.1*				*10.0-120*		*07/07/2019 06:57*	WG1305626

Sample Narrative:

L1113433-31 WG1305626: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.9		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1070		0.915	10.0	11.5	1	07/06/2019 03:16	WG1305719
Fluoride	16.1		0.300	1.00	1.15	1	07/06/2019 03:16	WG1305719
Sulfate	15200		13.1	50.0	1150	20	07/06/2019 03:30	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.77		0.529	2.00	2.30	1	07/03/2019 14:00	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0857	J	0.0255	0.100	0.117	1.02	07/04/2019 09:07	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*90.3*				*77.0-120*		*07/04/2019 09:07*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000460	0.00100	0.00115	1	07/03/2019 20:25	WG1305896
Toluene	U		0.00144	0.00500	0.00575	1	07/03/2019 20:25	WG1305896
Ethylbenzene	U		0.000610	0.00250	0.00288	1	07/03/2019 20:25	WG1305896
Total Xylenes	U		0.00550	0.00650	0.00748	1	07/03/2019 20:25	WG1305896
(S) Toluene-d8	*106*				*75.0-131*		*07/03/2019 20:25*	WG1305896
(S) 4-Bromofluorobenzene	*96.6*				*67.0-138*		*07/03/2019 20:25*	WG1305896
(S) 1,2-Dichloroethane-d4	*95.2*				*70.0-130*		*07/03/2019 20:25*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	52.8		1.85	4.00	4.60	1	07/07/2019 19:01	WG1306412
C28-C40 Oil Range	53.7		0.315	4.00	4.60	1	07/07/2019 19:01	WG1306412
(S) o-Terphenyl	*67.9*				*18.0-148*		*07/07/2019 19:01*	WG1306412

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.0549	0.333	3.83	10	07/07/2019 07:36	WG1305626
2-Chlorophenol	U		0.0956	0.333	3.83	10	07/07/2019 07:36	WG1305626
2,4-Dichlorophenol	U		0.0858	0.333	3.83	10	07/07/2019 07:36	WG1305626
2,4-Dimethylphenol	U		0.542	0.333	3.83	10	07/07/2019 07:36	WG1305626
4,6-Dinitro-2-methylphenol	U		1.43	0.333	3.83	10	07/07/2019 07:36	WG1305626
2,4-Dinitrophenol	U		1.13	0.333	3.83	10	07/07/2019 07:36	WG1305626
2-Nitrophenol	U		0.150	0.333	3.83	10	07/07/2019 07:36	WG1305626
4-Nitrophenol	U		0.604	0.333	3.83	10	07/07/2019 07:36	WG1305626
Pentachlorophenol	U		0.552	0.333	3.83	10	07/07/2019 07:36	WG1305626
Phenol	U		0.0799	0.333	3.83	10	07/07/2019 07:36	WG1305626
2,4,6-Trichlorophenol	U		0.0896	0.333	3.83	10	07/07/2019 07:36	WG1305626
(S) 2-Fluorophenol	*94.9*				*12.0-120*		*07/07/2019 07:36*	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*88.0*				*10.0-120*		*07/07/2019 07:36*	WG1305626
(S) Nitrobenzene-d5	*76.0*				*10.0-122*		*07/07/2019 07:36*	WG1305626
(S) 2-Fluorobiphenyl	*87.4*				*15.0-120*		*07/07/2019 07:36*	WG1305626
(S) 2,4,6-Tribromophenol	*98.5*				*10.0-127*		*07/07/2019 07:36*	WG1305626
(S) p-Terphenyl-d14	*82.5*				*10.0-120*		*07/07/2019 07:36*	WG1305626

Sample Narrative:

L1113433-32 WG1305626: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.4		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	2530		48.3	10.0	607	50	07/06/2019 09:53	WG1305719
Fluoride	3.19		0.317	1.00	1.21	1	07/06/2019 03:45	WG1305719
Sulfate	25400		34.6	50.0	3030	50	07/06/2019 09:53	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	1.61	J	0.558	2.00	2.43	1	07/03/2019 14:08	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.231		0.0263	0.100	0.121	1	07/04/2019 09:28	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.6*				*77.0-120*		*07/04/2019 09:28*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	0.000570	J	0.000485	0.00100	0.00121	1	07/03/2019 20:46	WG1305896
Toluene	U		0.00152	0.00500	0.00607	1	07/03/2019 20:46	WG1305896
Ethylbenzene	U		0.000643	0.00250	0.00303	1	07/03/2019 20:46	WG1305896
Total Xylenes	U		0.00580	0.00650	0.00789	1	07/03/2019 20:46	WG1305896
(S) Toluene-d8	*107*				*75.0-131*		*07/03/2019 20:46*	WG1305896
(S) 4-Bromofluorobenzene	*96.7*				*67.0-138*		*07/03/2019 20:46*	WG1305896
(S) 1,2-Dichloroethane-d4	*96.5*				*70.0-130*		*07/03/2019 20:46*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	2.23	J	1.95	4.00	4.85	1	07/07/2019 16:52	WG1306412
C28-C40 Oil Range	0.949	J	0.333	4.00	4.85	1	07/07/2019 16:52	WG1306412
(S) o-Terphenyl	*65.3*				*18.0-148*		*07/07/2019 16:52*	WG1306412

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00579	0.333	0.404	1	07/08/2019 04:12	WG1305626
2-Chlorophenol	U		0.0101	0.333	0.404	1	07/08/2019 04:12	WG1305626
2,4-Dichlorophenol	U		0.00905	0.333	0.404	1	07/08/2019 04:12	WG1305626
2,4-Dimethylphenol	U		0.0572	0.333	0.404	1	07/08/2019 04:12	WG1305626
4,6-Dinitro-2-methylphenol	U		0.150	0.333	0.404	1	07/08/2019 04:12	WG1305626
2,4-Dinitrophenol	U		0.119	0.333	0.404	1	07/08/2019 04:12	WG1305626
2-Nitrophenol	U		0.0158	0.333	0.404	1	07/08/2019 04:12	WG1305626
4-Nitrophenol	U		0.0637	0.333	0.404	1	07/08/2019 04:12	WG1305626
Pentachlorophenol	U		0.0583	0.333	0.404	1	07/08/2019 04:12	WG1305626
Phenol	U		0.00843	0.333	0.404	1	07/08/2019 04:12	WG1305626
2,4,6-Trichlorophenol	U		0.00945	0.333	0.404	1	07/08/2019 04:12	WG1305626
(S) 2-Fluorophenol	*58.7*				*12.0-120*		*07/08/2019 04:12*	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Phenol-d5	*55.3*				*10.0-120*		*07/08/2019 04:12*	WG1305626
(S) Nitrobenzene-d5	*45.8*				*10.0-122*		*07/08/2019 04:12*	WG1305626
(S) 2-Fluorobiphenyl	*42.7*				*15.0-120*		*07/08/2019 04:12*	WG1305626
(S) 2,4,6-Tribromophenol	*48.6*				*10.0-127*		*07/08/2019 04:12*	WG1305626
(S) p-Terphenyl-d14	*52.0*				*10.0-120*		*07/08/2019 04:12*	WG1305626

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.7		1	07/03/2019 19:30	WG1306082

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Fluoride	16.8		0.294	1.00	1.13	1	07/06/2019 04:13	WG1305719
Sulfate	20400		32.1	50.0	2820	50	07/06/2019 04:28	WG1305719

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.82		0.519	2.00	2.26	1	07/03/2019 14:11	WG1305235

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.127		0.0257	0.100	0.118	1.05	07/04/2019 09:48	WG1306253
(S) a,a,a-Trifluorotoluene(FID)	*89.9*				*77.0-120*		*07/04/2019 09:48*	WG1306253

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Benzene	U		0.000451	0.00100	0.00113	1	07/03/2019 21:08	WG1305896
Toluene	U		0.00141	0.00500	0.00564	1	07/03/2019 21:08	WG1305896
Ethylbenzene	U		0.000598	0.00250	0.00282	1	07/03/2019 21:08	WG1305896
Total Xylenes	U		0.00539	0.00650	0.00733	1	07/03/2019 21:08	WG1305896
(S) Toluene-d8	*106*				*75.0-131*		*07/03/2019 21:08*	WG1305896
(S) 4-Bromofluorobenzene	*97.8*				*67.0-138*		*07/03/2019 21:08*	WG1305896
(S) 1,2-Dichloroethane-d4	*96.9*				*70.0-130*		*07/03/2019 21:08*	WG1305896

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.82	4.00	4.51	1	07/07/2019 17:08	WG1306412
C28-C40 Oil Range	0.441	J	0.309	4.00	4.51	1	07/07/2019 17:08	WG1306412
(S) o-Terphenyl	*66.3*				*18.0-148*		*07/07/2019 17:08*	WG1306412

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
4-Chloro-3-methylphenol	U		0.00538	0.333	0.375	1	07/08/2019 04:35	WG1305626
2-Chlorophenol	U		0.00937	0.333	0.375	1	07/08/2019 04:35	WG1305626
2,4-Dichlorophenol	U		0.00841	0.333	0.375	1	07/08/2019 04:35	WG1305626
2,4-Dimethylphenol	U		0.0531	0.333	0.375	1	07/08/2019 04:35	WG1305626
4,6-Dinitro-2-methylphenol	U		0.140	0.333	0.375	1	07/08/2019 04:35	WG1305626
2,4-Dinitrophenol	U		0.110	0.333	0.375	1	07/08/2019 04:35	WG1305626
2-Nitrophenol	U		0.0147	0.333	0.375	1	07/08/2019 04:35	WG1305626
4-Nitrophenol	U		0.0592	0.333	0.375	1	07/08/2019 04:35	WG1305626
Pentachlorophenol	U		0.0541	0.333	0.375	1	07/08/2019 04:35	WG1305626
Phenol	U		0.00784	0.333	0.375	1	07/08/2019 04:35	WG1305626
2,4,6-Trichlorophenol	U		0.00878	0.333	0.375	1	07/08/2019 04:35	WG1305626
(S) 2-Fluorophenol	*60.8*				*12.0-120*		*07/08/2019 04:35*	WG1305626
(S) Phenol-d5	*60.9*				*10.0-120*		*07/08/2019 04:35*	WG1305626

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry) mg/kg	Qualifier	SDL (dry) mg/kg	Unadj. MQL mg/kg	MQL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Nitrobenzene-d5	*47.1*				*10.0-122*		*07/08/2019 04:35*	WG1305626
(S) 2-Fluorobiphenyl	*46.2*				*15.0-120*		*07/08/2019 04:35*	WG1305626
(S) 2,4,6-Tribromophenol	*53.1*				*10.0-127*		*07/08/2019 04:35*	WG1305626
(S) p-Terphenyl-d14	*54.5*				*10.0-120*		*07/08/2019 04:35*	WG1305626

Method Blank (MB)

(MB) R3427177-1 07/02/19 14:15

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1113415-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1113415-01 07/02/19 14:15 • (DUP) R3427177-3 07/02/19 14:15

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.3	88.3	1	4.56		10

Laboratory Control Sample (LCS)

(LCS) R3427177-2 07/02/19 14:15

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3427790-1 07/03/19 14:56

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1113433-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-08 07/03/19 14:56 • (DUP) R3427790-3 07/03/19 14:56

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	87.7	87.8	1	0.0475		10

Laboratory Control Sample (LCS)

(LCS) R3427790-2 07/03/19 14:56

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3427314-1 07/03/19 08:38

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1115088-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1115088-01 07/03/19 08:38 • (DUP) R3427314-3 07/03/19 08:38

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	88.1	87.9	1	0.241		10

Laboratory Control Sample (LCS)

(LCS) R3427314-2 07/03/19 08:38

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3427850-1 07/04/19 09:47

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L1113433-18 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-18 07/04/19 09:47 • (DUP) R3427850-3 07/04/19 09:47

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	88.7	88.0	1	0.786		10

Laboratory Control Sample (LCS)

(LCS) R3427850-2 07/04/19 09:47

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3427841-1 07/03/19 19:30

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1113433-29 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-29 07/03/19 19:30 • (DUP) R3427841-3 07/03/19 19:30

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	86.7	86.7	1	0.0416		10

Laboratory Control Sample (LCS)

(LCS) R3427841-2 07/03/19 19:30

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3426050-1 06/29/19 08:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	2.53	J	0.795	10.0

L1113151-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1113151-03 06/29/19 09:46 • (DUP) R3426050-3 06/29/19 09:55

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	177	185	1	4.13		20

L1113691-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1113691-01 06/29/19 12:03 • (DUP) R3426050-6 06/29/19 12:11

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	142	148	9.823183	4.10		20

Laboratory Control Sample (LCS)

(LCS) R3426050-2 06/29/19 09:07

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	201	101	90.0-110	

L1113420-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113420-02 06/29/19 10:12 • (MS) R3426050-4 06/29/19 10:20 • (MSD) R3426050-5 06/29/19 10:29

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	708	68.2	758	736	9.80	9.50	9.940358	80.0-120	J6	J6	3.00	20

Method Blank (MB)

(MB) R3428103-1 07/05/19 13:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	1.75	J	0.795	10.0
Fluoride	U		0.261	1.00
Sulfate	U		0.570	50.0

L1113433-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-01 07/05/19 15:31 • (DUP) R3428103-3 07/05/19 15:48

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	5.65	6.14	1	8.20		20

L1113433-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-14 07/05/19 22:15 • (DUP) R3428103-6 07/05/19 22:33

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	13.8	13.9	1	0.278		20

L1113433-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-01 07/06/19 01:29 • (DUP) R3428103-7 07/06/19 01:47

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1620	1680	20	3.44		20
Sulfate	11100	12200	20	9.43		20

L1113433-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-14 07/06/19 12:06 • (DUP) R3428103-8 07/06/19 12:59

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	1280	1300	20	1.47		20
Sulfate	19100	20200	20	5.65		20

Laboratory Control Sample (LCS)

(LCS) R3428103-2 07/05/19 13:53

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	214	107	90.0-110	
Fluoride	20.0	21.7	109	90.0-110	
Sulfate	200	211	105	90.0-110	

L1113433-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113433-07 07/05/19 18:44 • (MS) R3428103-4 07/05/19 19:01 • (MSD) R3428103-5 07/05/19 19:19

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	617	248	889	837	104	95.6	1	80.0-120			5.98	20
Fluoride	61.7	19.5	59.6	57.5	65.0	61.5	1	80.0-120	J6	J6	3.69	20
Sulfate	617	15700	13900	15900	0.000	36.1	1	80.0-120	E V	E V	13.7	20

Method Blank (MB)

(MB) R3428032-1 07/05/19 17:23

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	0.971	J	0.795	10.0
Fluoride	U		0.261	1.00
Sulfate	U		0.570	50.0

L1113433-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-20 07/05/19 19:34 • (DUP) R3428032-5 07/05/19 19:49

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	540	709	1	27.0	J3	20
Fluoride	11.0	9.31	1	16.4		20

L1113433-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-20 07/05/19 20:03 • (DUP) R3428032-6 07/05/19 20:18

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	14900	15100	20	1.53		20

L1113433-34 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-34 07/06/19 04:13 • (DUP) R3428032-7 07/06/19 04:42

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	551	521	1	5.58		20
Fluoride	16.8	16.8	1	0.208		20

L1113433-34 Original Sample (OS) • Duplicate (DUP)

(OS) L1113433-34 07/06/19 04:28 • (DUP) R3428032-8 07/06/19 04:57

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	20400	20400	50	0.137		20

Laboratory Control Sample (LCS)

(LCS) R3428032-2 07/05/19 17:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	210	105	90.0-110	
Fluoride	20.0	21.2	106	90.0-110	
Sulfate	200	200	100	90.0-110	

L1113433-19 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113433-19 07/05/19 18:35 • (MS) R3428032-3 07/05/19 18:49 • (MSD) R3428032-4 07/05/19 19:06

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	584	1860	2440	2440	99.8	100	1	80.0-120	E	E	0.0783	20
Fluoride	58.4	4.97	36.3	35.7	53.7	52.7	1	80.0-120	J6	J6	1.66	20
Sulfate	584	16000	15200	15800	0.000	0.000	1	80.0-120	E V	E V	4.01	20

Method Blank (MB)

(MB) R3427463-1 07/03/19 13:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3427463-2 07/03/19 13:03 • (LCSD) R3427463-3 07/03/19 13:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	96.2	94.3	96.2	94.3	80.0-120			2.03	20

L1113492-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113492-01 07/03/19 13:09 • (MS) R3427463-6 07/03/19 13:17 • (MSD) R3427463-7 07/03/19 13:20

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	120	1.38	106	105	86.8	86.2	1	75.0-125			0.637	20

Method Blank (MB)

(MB) R3427462-1 07/03/19 11:28

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3427462-2 07/03/19 11:31 • (LCSD) R3427462-3 07/03/19 11:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	93.5	94.6	93.5	94.6	80.0-120			1.13	20

L1113433-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113433-01 07/03/19 11:36 • (MS) R3427462-6 07/03/19 11:44 • (MSD) R3427462-7 07/03/19 11:47

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	142	0.980	136	144	94.9	101	1	75.0-125			5.92	20

Method Blank (MB)

(MB) R3427568-3 07/04/19 01:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*99.6*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3427568-1 07/03/19 23:49 • (LCSD) R3427568-2 07/04/19 00:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.54	4.79	101	87.0	72.0-127			14.6	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*105*	*77.0-120*				

L1113259-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113259-01 07/04/19 07:49 • (MS) R3427568-4 07/04/19 10:14 • (MSD) R3427568-5 07/04/19 10:38

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	11.6	67.6	71.0	40.7	43.2	25	10.0-151			4.99	28
(S) a,a,a-Trifluorotoluene(FID)					*104*	*104*		*77.0-120*				

Method Blank (MB)

(MB) R3427887-3 07/04/19 02:34

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*94.5*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3427887-1 07/04/19 00:23 • (LCSD) R3427887-2 07/04/19 00:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.67	4.97	85.0	90.3	72.0-127			6.07	20
(S) a,a,a-Trifluorotoluene(FID)				*101*	*102*	*77.0-120*				

L1113433-15 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113433-15 07/04/19 03:19 • (MS) R3427887-4 07/04/19 10:09 • (MSD) R3427887-5 07/04/19 10:29

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	6.60	0.108	1.42	1.43	19.9	20.0	1	10.0-151			0.258	28
(S) a,a,a-Trifluorotoluene(FID)					*89.8*	*92.7*		*77.0-120*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R3427311-2 07/03/19 11:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	0.000641	J	0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*103*			*75.0-131*
(S) 4-Bromofluorobenzene	*107*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*106*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3427311-1 07/03/19 09:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.107	85.4	70.0-123	
Ethylbenzene	0.125	0.124	98.8	74.0-126	
Toluene	0.125	0.111	89.1	75.0-121	
Xylenes, Total	0.375	0.396	106	72.0-127	
(S) Toluene-d8			*103*	*75.0-131*	
(S) 4-Bromofluorobenzene			*105*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*104*	*70.0-130*	

L1113167-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113167-02 07/03/19 16:55 • (MS) R3427311-3 07/03/19 19:18 • (MSD) R3427311-4 07/03/19 19:39

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	0.00264	0.130	0.126	102	98.9	1	10.0-149			2.84	37
Ethylbenzene	0.125	ND	0.143	0.138	113	110	1	10.0-160			3.49	38
Toluene	0.125	ND	0.129	0.125	103	100	1	10.0-156			2.69	38
Xylenes, Total	0.375	ND	0.466	0.457	124	122	1	10.0-160			1.95	38
(S) Toluene-d8					*102*	*103*		*75.0-131*				
(S) 4-Bromofluorobenzene					*107*	*107*		*67.0-138*				
(S) 1,2-Dichloroethane-d4					*105*	*106*		*70.0-130*				

Method Blank (MB)

(MB) R3428067-2 07/03/19 11:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*108*			*75.0-131*
(S) 4-Bromofluorobenzene	*93.8*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*99.9*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3428067-1 07/03/19 10:59

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.0994	79.5	70.0-123	
Ethylbenzene	0.125	0.109	87.0	74.0-126	
Toluene	0.125	0.104	83.1	75.0-121	
Xylenes, Total	0.375	0.397	106	72.0-127	
(S) Toluene-d8			*109*	*75.0-131*	
(S) 4-Bromofluorobenzene			*103*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*101*	*70.0-130*	

Method Blank (MB)

(MB) R3427320-2 07/03/19 12:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	*106*			*75.0-131*
(S) 4-Bromofluorobenzene	*98.6*			*67.0-138*
(S) 1,2-Dichloroethane-d4	*98.4*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3427320-1 07/03/19 11:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	0.125	0.122	97.4	70.0-123	
Ethylbenzene	0.125	0.130	104	74.0-126	
Toluene	0.125	0.128	103	75.0-121	
Xylenes, Total	0.375	0.388	103	72.0-127	
(S) Toluene-d8			*107*	*75.0-131*	
(S) 4-Bromofluorobenzene			*99.3*	*67.0-138*	
(S) 1,2-Dichloroethane-d4			*103*	*70.0-130*	

Method Blank (MB)

(MB) R3427680-1 07/05/19 14:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*64.6*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3427680-2 07/05/19 15:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	43.9	87.8	50.0-150	
(S) o-Terphenyl			*72.2*	*18.0-148*	

L1113433-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113433-06 07/05/19 16:35 • (MS) R3427680-3 07/05/19 16:48 • (MSD) R3427680-4 07/05/19 17:00

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	62.3	14.5	61.8	55.0	76.0	65.0	2	50.0-150			11.7	20
(S) o-Terphenyl					*35.4*	*43.2*		*18.0-148*				

Method Blank (MB)

(MB) R3428114-1 07/06/19 12:25

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*59.9*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3428114-2 07/06/19 12:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	38.2	76.4	50.0-150	
(S) o-Terphenyl			*65.0*	*18.0-148*	

Method Blank (MB)

(MB) R3428448-1 07/07/19 15:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*69.7*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3428448-2 07/07/19 16:03

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	44.3	88.6	50.0-150	
(S) o-Terphenyl			*79.1*	*18.0-148*	

L1113454-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113454-01 07/07/19 19:50 • (MS) R3428448-3 07/07/19 20:06 • (MSD) R3428448-4 07/07/19 20:22

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	47.8	ND	43.3	43.9	90.6	91.1	1	50.0-150			1.38	20
(S) o-Terphenyl					*60.5*	*61.1*		*18.0-148*				

Method Blank (MB)

(MB) R3429060-1 07/09/19 17:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*73.9*			*18.0-148*

Laboratory Control Sample (LCS)

(LCS) R3429060-2 07/09/19 17:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
C10-C28 Diesel Range	50.0	35.1	70.2	50.0-150	
(S) o-Terphenyl			*62.5*	*18.0-148*	

L1114177-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114177-12 07/09/19 18:07 • (MS) R3429060-3 07/09/19 18:21 • (MSD) R3429060-4 07/09/19 18:37

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	1.94	27.7	28.6	51.5	53.3	1	50.0-150			3.20	20
(S) o-Terphenyl					*112*	*47.4*		*18.0-148*				

Method Blank (MB)

(MB) R3428455-2 07/07/19 19:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*11.4*			*10.0-122*
(S) 2-Fluorobiphenyl	*14.3*	J2		*15.0-120*
(S) p-Terphenyl-d14	*56.8*			*10.0-120*
(S) Phenol-d5	*14.4*			*10.0-120*
(S) 2-Fluorophenol	*16.4*			*12.0-120*
(S) 2,4,6-Tribromophenol	*14.3*			*10.0-127*

Laboratory Control Sample (LCS)

(LCS) R3428455-1 07/07/19 19:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
4-Chloro-3-methylphenol	0.666	0.262	39.3	28.0-120	
2-Chlorophenol	0.666	0.183	27.5	28.0-120	J4
2,4-Dichlorophenol	0.666	0.207	31.1	25.0-120	
2,4-Dimethylphenol	0.666	0.199	29.9	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.565	84.8	16.0-120	
2,4-Dinitrophenol	0.666	0.230	34.5	10.0-120	
2-Nitrophenol	0.666	0.183	27.5	20.0-120	
4-Nitrophenol	0.666	0.482	72.4	27.0-120	
Pentachlorophenol	0.666	0.458	68.8	29.0-120	
Phenol	0.666	0.202	30.3	28.0-120	
2,4,6-Trichlorophenol	0.666	0.247	37.1	37.0-120	
(S) Nitrobenzene-d5			*23.3*	*10.0-122*	
(S) 2-Fluorobiphenyl			*34.5*	*15.0-120*	
(S) p-Terphenyl-d14			*77.8*	*10.0-120*	
(S) Phenol-d5			*30.0*	*10.0-120*	
(S) 2-Fluorophenol			*30.8*	*12.0-120*	

Laboratory Control Sample (LCS)

(LCS) R3428455-1 07/07/19 19:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2,4,6-Tribromophenol			*49.7*	*10.0-127*	

L1113433-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113433-08 07/07/19 20:56 • (MS) R3428455-3 07/07/19 21:15 • (MSD) R3428455-4 07/07/19 21:35

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
4-Chloro-3-methylphenol	0.759	U	0.355	0.388	46.7	51.1	1	15.0-120			8.91	30
2-Chlorophenol	0.759	U	0.317	0.325	41.7	42.8	1	15.0-120			2.49	37
2,4-Dichlorophenol	0.759	U	0.332	0.337	43.7	44.4	1	20.0-120			1.70	31
2,4-Dimethylphenol	0.759	U	0.291	0.295	38.3	38.9	1	10.0-120			1.56	33
4,6-Dinitro-2-methylphenol	0.759	U	0.410	0.327	54.1	43.1	1	10.0-120			22.6	39
2,4-Dinitrophenol	0.759	U	0.244	ND	32.1	0.000	1	10.0-121		J3 J6	200	40
2-Nitrophenol	0.759	U	0.304	0.319	40.1	42.0	1	12.0-120			4.75	39
4-Nitrophenol	0.759	U	0.446	0.528	58.7	69.5	1	10.0-137			16.9	32
Pentachlorophenol	0.759	U	0.361	0.451	47.6	59.5	1	10.0-160			22.2	31
Phenol	0.759	U	0.334	0.348	44.0	45.8	1	12.0-120			4.01	38
2,4,6-Trichlorophenol	0.759	U	0.413	0.433	54.4	57.1	1	19.0-120			4.85	32
(S) Nitrobenzene-d5					*33.0*	*35.4*		*10.0-122*				
(S) 2-Fluorobiphenyl					*41.4*	*41.7*		*15.0-120*				
(S) p-Terphenyl-d14					*58.9*	*67.0*		*10.0-120*				
(S) Phenol-d5					*45.5*	*46.4*		*10.0-120*				
(S) 2-Fluorophenol					*47.3*	*50.0*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*53.8*	*59.6*		*10.0-127*				

Method Blank (MB)

(MB) R3428261-2 07/07/19 02:26

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*40.8*			*10.0-122*
(S) 2-Fluorobiphenyl	*46.2*			*15.0-120*
(S) p-Terphenyl-d14	*76.0*			*10.0-120*
(S) Phenol-d5	*53.2*			*10.0-120*
(S) 2-Fluorophenol	*56.2*			*12.0-120*
(S) 2,4,6-Tribromophenol	*52.9*			*10.0-127*

Laboratory Control Sample (LCS)

(LCS) R3428261-1 07/07/19 02:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
4-Chloro-3-methylphenol	0.666	0.408	61.3	28.0-120	
2-Chlorophenol	0.666	0.377	56.6	28.0-120	
2,4-Dichlorophenol	0.666	0.386	58.0	25.0-120	
2,4-Dimethylphenol	0.666	0.343	51.5	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.448	67.3	16.0-120	
2,4-Dinitrophenol	0.666	0.330	49.5	10.0-120	
2-Nitrophenol	0.666	0.355	53.3	20.0-120	
4-Nitrophenol	0.666	0.522	78.4	27.0-120	
Pentachlorophenol	0.666	0.429	64.4	29.0-120	
Phenol	0.666	0.419	62.9	28.0-120	
2,4,6-Trichlorophenol	0.666	0.529	79.4	37.0-120	
(S) Nitrobenzene-d5			*50.8*	*10.0-122*	
(S) 2-Fluorobiphenyl			*58.6*	*15.0-120*	
(S) p-Terphenyl-d14			*70.6*	*10.0-120*	
(S) Phenol-d5			*61.0*	*10.0-120*	
(S) 2-Fluorophenol			*65.9*	*12.0-120*	

Laboratory Control Sample (LCS)

(LCS) R3428261-1 07/07/19 02:06

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2,4,6-Tribromophenol			*85.4*	*10.0-127*	

L1115090-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1115090-01 07/07/19 08:15 • (MS) R3428261-3 07/07/19 08:34 • (MSD) R3428261-4 07/07/19 08:54

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
4-Chloro-3-methylphenol	0.695	U	0.543	0.663	78.2	95.5	10	15.0-120			19.9	30
2-Chlorophenol	0.695	U	0.535	0.658	77.0	94.7	10	15.0-120			20.6	37
2,4-Dichlorophenol	0.695	U	0.544	0.709	78.4	102	10	20.0-120			26.3	31
2,4-Dimethylphenol	0.695	U	ND	0.513	0.000	73.9	10	10.0-120	J6	J3	200	33
4,6-Dinitro-2-methylphenol	0.695	U	ND	ND	0.000	0.000	10	10.0-120	J6	J6	0.000	39
2,4-Dinitrophenol	0.695	U	ND	1.15	0.000	165	10	10.0-121	J6	J3 J5	200	40
2-Nitrophenol	0.695	U	0.582	0.701	83.8	101	10	12.0-120			18.5	39
4-Nitrophenol	0.695	U	ND	0.666	0.000	95.9	10	10.0-137	J6	J3	200	32
Pentachlorophenol	0.695	U	ND	ND	0.000	0.000	10	10.0-160	J6	J6	0.000	31
Phenol	0.695	U	0.556	0.667	80.0	96.1	10	12.0-120			18.2	38
2,4,6-Trichlorophenol	0.695	U	0.582	0.777	83.8	112	10	19.0-120			28.7	32
(S) Nitrobenzene-d5					*88.0*	*99.4*		*10.0-122*				
(S) 2-Fluorobiphenyl					*78.1*	*88.9*		*15.0-120*				
(S) p-Terphenyl-d14					*76.6*	*93.7*		*10.0-120*				
(S) Phenol-d5					*76.9*	*99.4*		*10.0-120*				
(S) 2-Fluorophenol					*88.4*	*109*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*80.5*	*102*		*10.0-127*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

Method Blank (MB)

(MB) R3428894-2 07/08/19 23:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*60.7*			*10.0-122*
(S) 2-Fluorobiphenyl	*61.0*			*15.0-120*
(S) p-Terphenyl-d14	*78.4*			*10.0-120*
(S) Phenol-d5	*64.3*			*10.0-120*
(S) 2-Fluorophenol	*71.3*			*12.0-120*
(S) 2,4,6-Tribromophenol	*70.0*			*10.0-127*

Laboratory Control Sample (LCS)

(LCS) R3428894-1 07/08/19 23:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
4-Chloro-3-methylphenol	0.666	0.448	67.3	28.0-120	
2-Chlorophenol	0.666	0.362	54.4	28.0-120	
2,4-Dichlorophenol	0.666	0.372	55.9	25.0-120	
2,4-Dimethylphenol	0.666	0.353	53.0	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.485	72.8	16.0-120	
2,4-Dinitrophenol	0.666	0.296	44.4	10.0-120	
2-Nitrophenol	0.666	0.322	48.3	20.0-120	
4-Nitrophenol	0.666	0.500	75.1	27.0-120	
Pentachlorophenol	0.666	0.575	86.3	29.0-120	
Phenol	0.666	0.363	54.5	28.0-120	
2,4,6-Trichlorophenol	0.666	0.444	66.7	37.0-120	
(S) Nitrobenzene-d5			*41.4*	*10.0-122*	
(S) 2-Fluorobiphenyl			*53.8*	*15.0-120*	
(S) p-Terphenyl-d14			*84.1*	*10.0-120*	
(S) Phenol-d5			*54.2*	*10.0-120*	
(S) 2-Fluorophenol			*56.2*	*12.0-120*	

Laboratory Control Sample (LCS)

(LCS) R3428894-1 07/08/19 23:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2,4,6-Tribromophenol			*78.1*	*10.0-127*	

L1113488-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1113488-04 07/09/19 06:45 • (MS) R3428894-3 07/09/19 07:07 • (MSD) R3428894-4 07/09/19 07:29

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
4-Chloro-3-methylphenol	0.813	ND	0.360	0.409	44.3	50.3	1	15.0-120			12.7	30
2-Chlorophenol	0.813	ND	0.269	0.355	33.0	43.7	1	15.0-120			27.8	37
2,4-Dichlorophenol	0.813	ND	0.299	0.360	36.8	44.3	1	20.0-120			18.5	31
2,4-Dimethylphenol	0.813	ND	0.162	0.179	20.0	22.1	1	10.0-120			10.0	33
4,6-Dinitro-2-methylphenol	0.813	ND	0.360	0.391	44.3	48.0	1	10.0-120			8.13	39
2,4-Dinitrophenol	0.813	ND	0.295	0.332	36.3	40.8	1	10.0-121			11.7	40
2-Nitrophenol	0.813	ND	0.275	0.360	33.8	44.3	1	12.0-120			26.9	39
4-Nitrophenol	0.813	ND	0.453	0.477	55.7	58.7	1	10.0-137			5.25	32
Pentachlorophenol	0.813	ND	0.435	0.456	53.5	56.2	1	10.0-160			4.93	31
Phenol	0.813	ND	0.305	0.427	37.5	52.6	1	12.0-120			33.3	38
2,4,6-Trichlorophenol	0.813	ND	0.311	0.359	38.3	44.1	1	19.0-120			14.2	32
(S) Nitrobenzene-d5					*29.8*	*40.2*		*10.0-122*				
(S) 2-Fluorobiphenyl					*37.8*	*46.5*		*15.0-120*				
(S) p-Terphenyl-d14					*55.9*	*58.9*		*10.0-120*				
(S) Phenol-d5					*36.2*	*48.8*		*10.0-120*				
(S) 2-Fluorophenol					*34.7*	*47.7*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*47.1*	*52.4*		*10.0-127*				

Method Blank (MB)

(MB) R3428867-2 07/09/19 02:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*65.2*			*10.0-122*
(S) 2-Fluorobiphenyl	*66.1*			*15.0-120*
(S) p-Terphenyl-d14	*73.6*			*10.0-120*
(S) Phenol-d5	*75.8*			*10.0-120*
(S) 2-Fluorophenol	*82.9*			*12.0-120*
(S) 2,4,6-Tribromophenol	*68.8*			*10.0-127*

Laboratory Control Sample (LCS)

(LCS) R3428867-1 07/09/19 02:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
4-Chloro-3-methylphenol	0.666	0.423	63.5	28.0-120	
2-Chlorophenol	0.666	0.465	69.8	28.0-120	
2,4-Dichlorophenol	0.666	0.413	62.0	25.0-120	
2,4-Dimethylphenol	0.666	0.382	57.4	15.0-120	
4,6-Dinitro-2-methylphenol	0.666	0.541	81.2	16.0-120	
2,4-Dinitrophenol	0.666	0.417	62.6	10.0-120	
2-Nitrophenol	0.666	0.441	66.2	20.0-120	
4-Nitrophenol	0.666	0.554	83.2	27.0-120	
Pentachlorophenol	0.666	0.457	68.6	29.0-120	
Phenol	0.666	0.495	74.3	28.0-120	
2,4,6-Trichlorophenol	0.666	0.554	83.2	37.0-120	
(S) Nitrobenzene-d5			*53.5*	*10.0-122*	
(S) 2-Fluorobiphenyl			*65.2*	*15.0-120*	
(S) p-Terphenyl-d14			*79.3*	*10.0-120*	
(S) Phenol-d5			*73.9*	*10.0-120*	
(S) 2-Fluorophenol			*80.0*	*12.0-120*	

Laboratory Control Sample (LCS)

(LCS) R3428867-1 07/09/19 02:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2,4,6-Tribromophenol			*71.2*	*10.0-127*	

L1114927-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1114927-04 07/09/19 04:26 • (MS) R3428867-3 07/09/19 04:45 • (MSD) R3428867-4 07/09/19 05:04

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
4-Chloro-3-methylphenol	0.773	U	0.424	0.448	54.8	58.0	1	15.0-120			5.59	30
2-Chlorophenol	0.773	U	0.449	0.461	58.1	59.6	1	15.0-120			2.55	37
2,4-Dichlorophenol	0.773	U	0.414	0.428	53.6	55.4	1	20.0-120			3.31	31
2,4-Dimethylphenol	0.773	U	0.379	0.395	49.1	51.1	1	10.0-120			3.90	33
4,6-Dinitro-2-methylphenol	0.773	U	0.571	0.587	73.9	76.0	1	10.0-120			2.81	39
2,4-Dinitrophenol	0.773	U	0.515	0.375	66.7	48.5	1	10.0-121			31.6	40
2-Nitrophenol	0.773	U	0.434	0.457	56.2	59.2	1	12.0-120			5.21	39
4-Nitrophenol	0.773	U	0.544	0.608	70.4	78.7	1	10.0-137			11.1	32
Pentachlorophenol	0.773	U	0.476	0.487	61.6	63.1	1	10.0-160			2.41	31
Phenol	0.773	U	0.494	0.500	64.0	64.7	1	12.0-120			1.17	38
2,4,6-Trichlorophenol	0.773	U	0.526	0.574	68.0	74.3	1	19.0-120			8.86	32
(S) Nitrobenzene-d5					*45.0*	*46.8*		*10.0-122*				
(S) 2-Fluorobiphenyl					*55.0*	*58.0*		*15.0-120*				
(S) p-Terphenyl-d14					*70.3*	*74.2*		*10.0-120*				
(S) Phenol-d5					*63.7*	*64.3*		*10.0-120*				
(S) 2-Fluorophenol					*67.7*	*67.3*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*62.8*	*64.9*		*10.0-127*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MQL (dry)	Method Quantitation Limit.
MQL	Method Quantitation Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
SDL (dry)	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Qualifier	Description
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

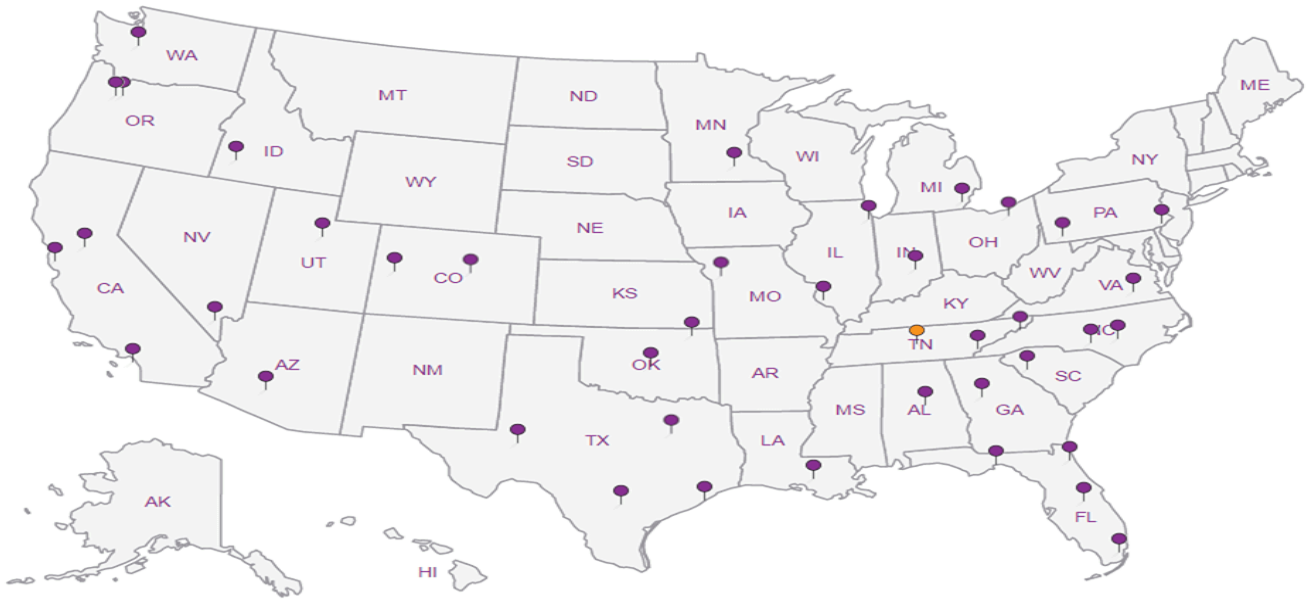
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: ~~Julie Speer~~ Cindy Crain

Email To: ~~jspeer@trccompanies.com~~; jstoffel@trccompanies.com; ckcrain@trccompanies.com

Project: HFNR-Arctic
Description: Cooling Tower Blowdown Release

City/State Collected:

Phone: ~~512-684-3170~~
Fax: 432-215-6730

Client Project #: 322192.2019.0000.

Lab Project #: TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #:

P.O. #:

Collected by (signature):

Quote #:

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl,F,SO4-300,ASICP 4ozClr-NoPres	DRO,MRO,SV8270ACID 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Remarks	Sample # (lab only)
Boring-01-0-0.5	Grab	SS	~	6/24/19	1100	5	X	X	X		-01
Boring-02-0-0.5		SS			1110						02
Boring-03-0-0.5		SS			1120						03
Boring-04-0-0.5		SS			1130						04
Boring-05-0-0.5		SS			1140						05
Boring-06-0-0.5		SS			1150						06
Boring-07-0-0.5		SS			1200						07
Boring-08-0-0.5		SS			1210						08
Boring-09-0-0.5		SS			1220						09
Boring-10-0-0.5		SS			1230						10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier J SWA

Tracking #

Chain of Custody Page 1 of 4

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1113433
1226

Acctnum: TRCATX
Template: T152078
Prelogin: P715928
TSR: 526 - Chris McCord
PB:
Shipped Via:

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	6/26/19	14:00	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	6.26.19	1630	SwA
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: 1.6 +0 1.6 °C Bottles Received: 170

If preservation required by Login: Date/Time

Date: 6/27/19 Time: 8:10

Hold:

Condition: NCF / (OK)

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: ~~Julie Speer~~ Cindy Crain

Email To: ~~jspeer@trccompanies.com~~; jstoffel@trccompanies.com ccrain@trccompanies.com

Project: HFNR-Artesia
Description: Cooling Tower Blowdown Release

City/State Collected:

Phone: ~~512-684-3170~~
Fax: 432-215-6730

Client Project #: 322192.2019.0000.

Lab Project #: TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl,F,SO4-300,ASICP 4ozClr-NoPres	DRO,MRO,SV8270ACID 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Remarks	Sample # (lab only)
Boring-11-0-0.5	Grab	SS	~	6/24/19	1240	5					-11
Boring-12-0-0.5		SS			1250						12
Boring-13-0-0.5		SS			1300						13
Boring-14-0-0.5		SS			1310						14
Boring-15-0-0.5		SS			1320						15
Boring-16-0-0.5		SS			1330						16
Boring-17-0-0.5		SS			1340						17
Boring-18-0-0.5		SS			1350						18
Boring-19-0-0.5		SS			1400						19
Boring-20-0-0.5		SS			1410						20

Analysis / Container / Preservative

Chain of Custody Page 2 of 4

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National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1113433

Table #

Acctnum: TRCATX
Template: T152078
Prelogin: P715928
TSR: 526 - Chris McCord
PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier ✓ SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP Y N
COC Signed/Accurate: ✓ Y N
Bottles arrive intact: ✓ Y N
Correct bottles used: ✓ Y N
Sufficient volume sent: ✓ Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

RAD SCREEN: <0.2

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / NO HCL / MeoH TBR	If preservation required by Login: Date/Time
	6/26/19	14:00			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:	
	6.26.19	1633	SwA	1.6+0.1=1.7 170	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:	Hold: Condition: NCF OK
				6/27/19 8:00	

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: ~~Julie Speer~~ Cindy Crain

Email To: ~~jspeer@trccompanies.com;~~ jstoffel@trccompanies.com ccrain@trccompanies.com

Project Description: HFNR-Artesia - Cooling Tower Blowdown Release

City/State Collected:

Phone: ~~512-684-3170~~
Fax: 432-215-6730

Client Project # 322192.2019.0000.

Lab Project # TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately Packed on Ice N ___ Y X

Analysis / Container / Preservative

Chain of Custody Page 3 of 4

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1113433

Table #

Acctnum: TRCATX
Template: T152078
Prelogin: P715928
TSR: 526 - Chris McCord
PB:

Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl,F,SO4-300,ASICP 4ozClr-NoPres	DRO,MRO,SV8270ACID 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Remarks	Sample # (lab only)
Boring-21-0-0.5	Grab	SS	—	6/24/19	1420	5	X	X	X		-21
Boring-22-0-0.5		SS			1430						22
Boring-23-0-0.5		SS			1440						23
Boring-24-0-0.5		SS			1450						24
Boring-25-0-0.5		SS			1500						25
Boring-26-0-0.5		SS			1510						26
Boring-27-0-0.5		SS			1520						27
Boring-28-0-0.5		SS			1530						28
Boring-29-0-0.5		SS			1540						29
Boring-30-0-0.5		SS			1550						30

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier USWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: (NP) Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD SCREEN: [illegible]

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR
	6/26/19	14:00		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
	6.26.19	1615		1.6-0.1.6 CF 170
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				6/27/19 8:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: Julie Speer

Email To: jspeer@trccompanies.com; jstoffel@trccompanies.com

Project Description: HFNR-Artesia- Cooling Tower Blowdown Release

City/State Collected:

Phone: ~~512-684-3170~~
Fax: 432-215-6730

Client Project # 322192.2019.0000.

Lab Project # TRCATX-322192

Collected by (print): J. Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately Packed on Ice N ___ Y X

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cl,F,SO4-300,ASICP 4ozClr-NoPres	DRO,MRO,SV8270ACID 4ozClr-NoPres	GRO,V8260BTEX 40ml/NaHSO4/Syr/MeOH	Remarks	Sample # (lab only)
Boring-31-0-0.5	Grab	SS	—	6/24/19	1600	5	x	x	x		-31
Dup-01-0-0.5-6-24-19	↓	SS	↓	↓	—	↓	↓	↓	↓		32
Dup-02-0-0.5-6-24-19	↓	SS	↓	↓	—	↓	↓	↓	↓		33
Dup-03-0-0.5-6-24-19	↓	SS	↓	↓	—	↓	↓	↓	↓		34
		SS									
		SS									
		SS									
		SS									
		SS									
		SS									

Analysis / Container / Preservative

Chain of Custody Page 4 of 4

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National Center for Testing & Innovation

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L# L1113433

Table #

Acctnum: TRCATX
Template: T152078
Prelogin: P715928
TSR: 526 - Chris McCord
PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier √ SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	6/26/19	14:00	
Relinquished by : (Signature)	Date: 6.26.19	Time: 16:30	Received by: (Signature) SWA
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes No
HCL / MeoH
TBR

Temp: °C Bottles Received: 1.6+0=1.6 4.5 5c 17C

Date: 6/27/19 Time: 8:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 22, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1118990
Samples Received:	06/27/2019
Project Number:	322192.2019.0000.
Description:	HFNE-Artesia Cooling Tower Blowdown Release

Report To: Cindy Crain
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Jason Romer
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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BORING-23-0-0.5 L1118990-01 GW

Collected by: J. Stoffel
Collected date/time: 06/24/19 14:40
Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1314199	1	07/19/19 10:36	07/19/19 10:36	RT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1315136	1	07/21/19 23:37	07/22/19 09:24	CCE	Mt. Juliet, TN

BORING-26-0-0.5 L1118990-02 GW

Collected by: J. Stoffel
Collected date/time: 06/24/19 15:10
Received date/time: 06/27/19 08:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1314199	1	07/19/19 10:36	07/19/19 10:36	RT	Mt. Juliet, TN
Metals (ICP) by Method 6010B	WG1315136	1	07/21/19 23:37	07/22/19 09:35	CCE	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Jason Romer
Project Manager

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Jason Romer
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 07/22/2019 15:03
Project Name: HFNE-Artesia Cooling Tower Blowdown Release	Laboratory Job Number: L1118990-01 and 02
Reviewer Name: Jason Romer	Prep Batch Number(s): WG1315136 and WG1314199

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?			X		
		Were analytical duplicates analyzed at the appropriate frequency?			X		
		Were RPDs or relative standard deviations within the laboratory QC limits?			X		
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 07/22/2019 15:03
Project Name: HFNE-Artesia Cooling Tower Blowdown Release	Laboratory Job Number: L1118990-01 and 02
Reviewer Name: Jason Romer	Prep Batch Number(s): WG1315136 and WG1314199

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?			X		
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?	X				
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 07/22/2019 15:03
Project Name: HFNE-Artesia Cooling Tower Blowdown Release	Laboratory Job Number: L1118990-01 and 02
Reviewer Name: Jason Romer	Prep Batch Number(s): WG1315136 and WG1314199

ER #[1]	Description
	The Exception Report intentionally left blank, there are no exceptions applied to this SDG.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		7/19/2019 10:36:45 AM	WG1314199
Fluid	2		7/19/2019 10:36:45 AM	WG1314199
Final pH	6.26		7/19/2019 10:36:45 AM	WG1314199

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Arsenic	0.0172		0.00650	0.0100	0.0100	1	07/22/2019 09:24	WG1315136

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		7/19/2019 10:36:45 AM	WG1314199
Fluid	2		7/19/2019 10:36:45 AM	WG1314199
Final pH	7.41		7/19/2019 10:36:45 AM	WG1314199

Metals (ICP) by Method 6010B

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Arsenic	U		0.00650	0.0100	0.0100	1	07/22/2019 09:35	WG1315136

April 29, 2019

Mr. Carl Chavez
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: December 29, 2018 Wastewater Effluent Pipeline Release, Site Assessment/ Characterization, and Closure Report, HollyFrontier Navajo Refining LLC, Artesia Refinery, Artesia, New Mexico, GW-028

Dear Mr. Chavez:

HollyFrontier Navajo Refining LLC (Navajo) is submitting this letter to document site characterization results of the wastewater release that was discovered on December 29, 2018, near the Artesia Refinery (Refinery) located in Artesia, New Mexico. This letter also serves as the Closure Report for this release. The release occurred from the Navajo pipeline that conveys treated wastewater from the refinery to injection wells for disposal in accordance with Groundwater Discharge Permit GW-028 and Underground Injection Control (UIC) permits. The release location and extent of the release area is shown on Figure 1. The initial Form C-141 (Release Notification) for this release was submitted to the New Mexico Oil Conservation Division (OCD) on January 4, 2019. The Site Assessment/Characterization and Closure Form C-141 is provided as Attachment A.

INITIAL RELEASE RESPONSE ACTIVTIES

Navajo Operations discovered the release based on a change in pipeline flow and pressure monitoring parameters. Navajo completed the following activities after discovery of the release:

- Immediately after noticing a change in pipeline monitoring parameters, the Refinery wastewater effluent discharge pumps were turned off and in-line valves on the pipeline were closed.
- Free liquids were recovered via vacuum truck and returned to the Refinery wastewater system. Approximately 270 barrels of wastewater were recovered.
- The extent of the released wastewater was outlined with flags. The release area was defined by the presence of wet soil; there was no staining present.
- Soil immediately surrounding the pipeline was excavated to allow repairs of the line and was disposed off-site as non-hazardous waste.

- A sample representative of the released wastewater was collected from near the pipeline pumps within the refinery and submitted for laboratory analysis of New Mexico Water Quality Control Commission (WQCC) constituents (NMAC 20.6.2.3103) and total petroleum hydrocarbons (TPH). Analytical results are summarized and compared to WQCC standards in Table 1. The laboratory analytical report is also provided as Attachment B.
    - Analytical results indicated the following constituents were present in the released wastewater at concentrations that exceeded their respective WQCC standard: arsenic, chloride, fluoride, sulfate, phenol, and total dissolved solids (TDS).
    - TPH diesel range organics (DRO) and gasoline range organics (GRO) were detected in the released wastewater, but there are no applicable WQCC standards for TPH. The representative wastewater sample was not analyzed for TPH motor oil range organics (MRO).

SITE CHARACTERIZATION

Site characterization information for the release is provided below in accordance with 19.15.29.11 NMAC.

- Depth to Groundwater: Monitoring well MW-27 is located approximately 130 feet to the east and south of the release area and it is gauged on a semi-annual basis as part of the facility-wide groundwater monitoring program. The depth to groundwater measured at MW-27 in April 2018 and October 2018 was 17.81 feet below ground surface (bgs). Groundwater gauging records will be provided to the OCD in the *2018 Groundwater Monitoring Report* by June 15, 2019. Groundwater beneath the release area flows to the east.
- Distance to Nearest Watercourse: The wastewater effluent pipeline, from which the release occurred, is located within an easement that runs along the south side of Eagle Creek. Released wastewater reached Eagle Creek, as shown on Figures 1 and 2. Eagle Creek is an ephemeral watercourse that primarily only flows following rain events and was dry at the time of the release. Therefore, the released wastewater did not come in contact with any surface water. According to the Federal Emergency Management Agency (FEMA) Map Service Center, the release location is located within a 100-year floodplain.
- Distance to Nearest Fresh Water Well or Spring: There are no known fresh water springs within 0.5-miles of the release location. New Mexico Office of the State Engineer (NM OSE) online records indicate there are eight potential fresh water wells (wells installed for non-monitoring purposes) located within 0.5-miles of the release location. A screenshot from the NM OSE ArcGIS Online tool showing all potential wells located within 0.5-miles of the release is provided in Attachment C. The reported well use and horizontal distance from the release area is also specified for each potential fresh water well on Attachment C. The two

potential fresh water wells that are located nearest to the release area (within 1,000 feet as documented on the C-141 Form) are described below:

- RA-02661: Permitted for domestic purposes and located approximately 640 feet to the south-southwest and upgradient/crossgradient of the release area. This well was installed in 1950 and is located within a commercial pecan orchard that is no longer used for residential purposes (Parcel ID 4-154-098-275-135). Therefore, if this well exists at this location, it is likely used for irrigation and not for domestic purposes. The depth of the well is not available in the NM OSE records.
- RA-10442: Permitted for domestic or livestock purposes, and located approximately 1,000 feet southeast and crossgradient/downgradient of the release area. This well was installed in 2005 to a total depth of 170 feet bgs.

The release occurred at a location adjacent to the former Three Mile Ditch (TMD), which is listed as Solid Waste Management Unit (SWMU) 7 in the Refinery's Post-Closure Care Permit (PCC Permit), issued in December 2010 by the New Mexico Environment Department (NMED). The extent of the December 2018 wastewater release overlays portions of TMD. TMD was an open, earthen ditch that was used to convey wastewater from the Refinery to the Evaporation Ponds from the 1930s to 1987. TMD was constructed within an easement located on the south side of Eagle Creek and had earthen berms along both sides. The approximate dimensions of TMD were 3 to 4 feet wide and 1 to 2 feet deep. During operation, TMD was periodically cleared of surface debris and dredged with a backhoe. The material removed from the bottom of TMD at that time was placed along the TMD berms. In 1987, TMD was replaced with underground piping and TMD was filled in using the berm material. Navajo has conducted corrective action investigation and implemented interim measures along TMD in accordance with the PCC Permit and NMED directives. Additional investigation and/or interim measures of TMD will be completed under the regulatory oversight of NMED and in accordance with the PCC Permit.

SOIL ASSESSMENT ACTIVITIES

TRC Environmental Corporation (TRC) conducted release area soil assessment activities on behalf of Navajo on January 4, 2019, and March 14, 2019. Discrete grab surface soil samples were collected from the release area and background areas, and the sample locations are shown on Figure 2. Soil assessment included collection of soil samples within Eagle Creek, which was generally dry during each assessment event.

Initial Soil Assessment – January 4, 2019

During initial soil assessment activities conducted on January 4, 2019, discrete grab surface soil samples were collected from the release area at an approximate spacing of one per 200 square

feet (ft^2). A total of 26 surface soil samples, designated as WPL-01 through WPL-26, were collected over the approximate 5,200-ft^2 release area. Five grab surface soil samples, designated as BG-01 through BG-05, were collected from areas unaffected from the release to evaluate local background concentrations in soil. Soil samples were collected from 0 to 0.5 feet bgs using a decontaminated shovel. Three field duplicate soil samples were collected for data quality assurance/quality control (QA/QC) purposes.

Each soil sample collected from the release and background areas were submitted for laboratory analysis of TPH and the WQCC constituents that exceeded WQCC standards in the released wastewater (except TDS), as follows:

- TPH DRO and GRO Method 8015M;
- Arsenic by Method 6010/6020; and
- Chloride, fluoride, and sulfate by Method 300.

The soil sample with the maximum detected arsenic concentration in the release area and in the background area was analyzed for arsenic by synthetic precipitation leaching procedure (SPLP). Soil samples collected from the release and background areas were inadvertently not submitted for laboratory analysis of TPH MRO and phenol.

Additional Soil Assessment – March 14, 2019

Subsequent soil assessment activities were conducted on March 14, 2019, to (1) delineate the lateral and vertical extent of chloride and TPH (DRO and GRO) that was detected at concentrations in exceedance of 19.15.29 NMAC closure criteria during the initial soil assessment activities, and (2) determine if TPH MRO and phenol are present in surface soil at concentrations in exceedance of applicable closure criteria.

Discrete grab soil samples were collected from beneath and around each soil sample that previously exceeded the 19.15.29 NMAC closure criteria for chloride (WPL-06 and WPL-07) or TPH DRO and GRO (WPL-08, WPL-09, WPL-15, and WPL-18).

- Step-out surface soil samples (for lateral delineation) were collected approximately 15 feet from the original sample location in each cardinal direction that required horizontal delineation. These step-out samples included WPL-06-N, WPL-06-S, WPL-06-W, WPL-07-E, WPL-07-W, WPL-08-E, WPL-09-N, WPL-09-W, WPL-15-N, WPL-15-S, WPL-15-W, WPL-18-N, WPL-18-S, and WPL-18-W, with the last letter of each sample identification indicating the cardinal direction relative to the original sample location (i.e., N=North, S=South, E= East, W=West). Step-out surface soil samples were collected from 0 to 0.5 feet bgs using a decontaminated shovel.

- Due to the natural variability of anions in surface soil detected during other release investigations performed by the Refinery along the pipeline, additional step-out samples were collected approximately 10 feet from each first step-out sample around WPL-06 and WPL-07. The additional step-out samples were named WPL-06-N-2, WPL-06-S-2, etc. The laboratory analysis of these second step-out samples was held pending laboratory results of the first step-out samples.

- Deeper soil samples (for vertical delineation) were collected from 2 feet bgs beneath the original soil sample location using a decontaminated stainless-steel hand auger. These deeper samples included WPL-06-2, WPL-07-2, WPL-08-2, WPL-09-2, WPL-15-2, and WPL-18-2, with the last number of each sample identification indicating the depth of the sample relative to the ground surface. One additional deeper sample was collected from the depth of refusal (3 to 5 feet bgs) beneath each sample location and the laboratory analysis of the second deeper sample was held pending laboratory results of the first step-out samples.

Grab samples were also recollected at sample locations WPL-12 and WPL-19 to evaluate for the presence of MRO and phenol at these sample locations, and to determine if the presence of MRO would cause the sample locations to exceed the 19.15.29 NMAC closure criteria for TPH. The DRO results at each of these locations (70.4 milligrams per kilogram [mg/kg] and 74.8 mg/kg, respectively) were less than the 19.15.29 NMAC closure criteria of 100 mg/kg, but additional presence of MRO may exceed the TPH closure criteria at these locations. The relative DRO concentrations (<40 mg/kg) at the remaining soil sample locations indicated that the 19.15.29 NMAC closure criteria for TPH would likely not be exceeded with additional MRO analysis. No step-out or deeper samples were collected at WPL-12 and WPL-19.

Three field duplicate soil samples were also collected for data QA/QC purposes. The soil samples collected on March 14, 2019, were submitted for laboratory analysis of one or more of the following analyses:

- Phenol by Method 8270;
- TPH DRO, GRO, and MRO by Method 8015M; and/or
- Chloride by Method E300.

SOIL ASSESSMENT RESULTS

Soil analytical results for the release area are summarized and compared to applicable closure criteria in Table 2. Closure criteria were selected in accordance with 19.15.29 NMAC as follows:

- Analytical results for constituents included in Table 1 of 19.15.29 NMAC (chloride and TPH DRO, GRO, and MRO) are compared to the closure criteria provided in Table 1 of 19.15.29

NMAC for a minimum depth of <50 feet to groundwater below the horizontal boundary of the release.

- Analytical results of constituents that are not included in Table 1 of 19.15.29.12 NMAC are compared to the criteria listed in either: (1) 40 CFR 261.24, if the constituent is included on Table 1 of 40 CFR 261.24(b), or (2) the New Mexico Environment Department (NMED) risk-based soil screening levels (SSLs) with a dilution attenuation factor (DAF) of 20 per NMED *Risk Assessment Guidance for Site Investigations and Remediation, Volume I, Soil Screening Guidance for Human Health Risk* revised March 7, 2019 (2019 NMED Risk Assessment Guidance).
    - Arsenic is the only constituent that is included on Table 1 of 40 CFR 261.24(b). The criteria included in Table 1 of 40 CFR 261.24(b) consists of the maximum concentration for the toxicity characteristic determined by the toxicity characteristic leaching procedure (TCLP). TCLP simulates landfill conditions to determine the maximum potential concentration of a constituent in leachate from the soil if placed in a landfill, which is not consistent with in-situ conditions (i.e., soil left in place). Toxicity characteristic is not an appropriate closure criteria for in-situ soil, therefore soil samples with the maximum detected concentrations of arsenic in the release and background areas were analyzed for arsenic by SPLP (which simulates in-situ conditions) and the analytical results are compared to the regulatory level for arsenic in Table 1 of 40 CFR 261.24(b).
    - All other constituents were compared to SSLs (if available) with a DAF of 20 per the 2019 NMED Risk Assessment Guidance. The 2019 NMED Risk Assessment Guidance includes "Risk-based SSLs" for each constituent and "New Mexico Groundwater- (NMGW-) or Maximum Contaminant Level- (MCL-) based SSLs" for select constituents. The "NMGW- or MCL-based SSL" was selected if available for a constituent; otherwise the "Risk-based SSL" was selected for the remaining constituents.
    - Sulfate is not listed in Table 1 of 19.15.29.12 NMAC, 40 CFR 261.24, or the 2017 NMED Risk Assessment Guidance. Sulfate analytical results are compared to the maximum concentration detected in the background area.

As highlighted in yellow on Table 2, analytical results indicate chloride, TPH, and sulfate are present in surface soil within the release area at concentrations that exceed its respective closure criteria, as follows:

- Chloride: Analytical results exceeded the chloride closure criteria of 600 mg/kg in samples WPL-06, WPL-06-N, WPL-07, WPL-07-E, and WPL-07-W, with a maximum concentration of 1,010 mg/kg at WPL-06-N. Chloride did not exceed the closure criteria in either of the samples collected from 2 feet bgs beneath WPL-06 and WPL-07.

- The March 2019 soil samples with the maximum detected chloride concentrations (WPL-06-N and WPL-07-W) were analyzed by the laboratory for chloride by SPLP. The chloride SPLP results are presented in Table 2 and indicate chloride will not leach from soil at concentrations in exceedance of the WQCC groundwater standard for domestic water supply (250 mg/L). Therefore, no further investigation or remediation is recommended for chloride in soil. Groundwater monitoring for chloride at downgradient monitoring well MW-27 will continue on an annual basis as part of the facility-wide groundwater monitoring program.
- Chloride is delineated laterally in all directions to the closure criteria, with the exception to the east of WPL-07-E. Chloride was detected at a concentration of 609 mg/kg in step-out sample WPL-07-E, which slightly exceeded the closure criteria of 600 mg/kg.
- Chloride is delineated vertically to the closure criteria at less than 2 feet bgs.

- TPH: Analytical results exceeded the TPH closure criteria of 100 mg/kg in 15 samples, with a maximum concentration of 13,200 mg/kg at WPL-09-2 (sample collected from 2 feet bgs beneath WPL-09). TPH did not exceed the closure criteria in samples collected from 2 feet bgs beneath WPL-15 and WPL-18 (within Eagle Creek), and in the sample collected from 5 feet bgs beneath WPL-09 (deeper sample at WPL-08 was not analyzed).
  - As shown on Figure 2, TPH only exceeded the closure criteria within areas along TMD and locations near Highway 229 (including in Eagle Creek). The lateral and vertical distribution and magnitude of TPH concentrations across the release area indicate the presence of TPH in exceedance of closure criteria are related to other sources not related to the wastewater release. In addition, no indicator compounds associated with TPH mixtures (VOCs and SVOCs) were detected in the representative wastewater sample and TPH did not exceed closure criteria in soil during previous investigations of similar wastewater effluent pipeline releases. TPH at WPL-08 and WPL-09 is likely associated with TMD, while TPH at WPL-12, WPL-15, and WPL-19 is likely related with runoff from Highway 229.
    - TPH along TMD: TPH concentrations increased from the ground surface to 2 feet bgs at WPL-08 and WPL-09, but then significantly decreased at 5 feet bgs beneath WPL-09. As described above, TMD was approximately 1 to 2 feet deep and the presence of elevated TPH at this depth indicates TMD is the source of TPH in this area. Further investigation and remediation of TPH in the area of TMD will be conducted in accordance with the PCC Permit under the direction of NMED instead of 19.15.29.12 NMAC.

- TPH along Highway 229: TPH concentrations in exceedance of closure criteria at WPL-12, WPL-15, and WPL-18 are likely associated with runoff from Highway 229 and not the wastewater release, as described below.
  - Hydrocarbons in road runoff are typically associated with used crankcase oil which primarily contains higher range organics (i.e., MRO). MRO concentrations in surface soil samples collected from 0.5 feet bgs along Highway 229 (WPL-12, WPL-15-W, WPL-15-S, WPL-18-N, WPL-18-W, and WPL-18-S) were 30% to 1,000% greater than GRO and DRO concentrations at the same location indicating the source of TPH at these locations is most likely related with road runoff. Further, in the soil samples that exceeded TPH closure criteria, MRO accounted for a majority (57% to 100%) of the total detected TPH concentration in samples collected along Highway 229 (with the exception of the duplicate sample collected at WPL-15-2) while MRO accounted for a lesser percentage (43% to 60%) of the total detected TPH concentration in samples collected along TMD. The DRO and MRO percentages of total detected TPH concentrations in soil samples that exceeded TPH closure criteria are shown on the bar chart provided as Attachment D (GRO was excluded because it was either not detected or accounted for a negligible percent of the total TPH concentration in each sample).
  - TPH concentrations along the topographical low in Eagle Creek were significantly higher at locations nearest Highway 229 (WPL-15 and WPL-18) and decreased with distance from Highway 229 indicating that runoff from the highway is likely the source of TPH within surface soil at Eagle Creek. The DRO and MRO concentrations along the topographical low in Eagle Creek are shown on the plot provided as Attachment E (GRO concentrations were not included because they were negligible compared to DRO and MRO concentrations).

- It is not necessary to delineate TPH exceedances in surface soil associated with road runoff as the presence of TPH is not related to the wastewater release.
- TPH is delineated vertically to the closure criteria at 5 feet bgs in the area of TMD and at 2 feet bgs in Eagle Creek.

- Sulfate: Analytical results exceeded the sulfate closure criteria of 16,400 mg/kg (maximum background concentration) in 10 samples. Sulfate concentrations across the release area ranged from 418 mg/kg at WPL-19 to 25,000 mg/kg at WWPL-02. The distribution and magnitude of sulfate concentrations across the release and background areas indicate the presence of sulfate in surface soil is not associated with the wastewater release. No further

investigation or remediation is recommended for sulfate in surface soil. Groundwater monitoring for sulfate at downgradient monitoring well MW-27 will continue on an annual basis as part of the facility-wide groundwater monitoring program.

REQUEST FOR CLOSURE

Navajo requests no further action for the December 2018 wastewater release under 19.15.29 NMAC as (1) TPH in surface soil at concentrations that exceed 19.15.29 NMAC closure criteria is not associated with the December 2018 wastewater release and (2) chloride in surface soil at concentrations that exceed 19.15.29 NMAC closure criteria will not leach to groundwater at concentrations in exceedance of WQCC standards as demonstrated through SPLP analysis. Further investigation and remediation (if needed) of TPH near TMD will be conducted in accordance with the PCC Permit under the direction of NMED. TPH in soil along Highway 229 is most likely associated with road runoff and not the December 2018 wastewater release.

The presence of TPH in soil along Highway 229 is not associated with the December 2018 wastewater release and does not cause an imminent risk to human health or the environment as TPH concentrations along Highway 229 do not exceed the NMED TPH industrial/construction worker exposure screening levels for unknown oil (3,800 mg/kg) or waste oil (5,000 mg/kg).

Navajo will continue to monitor groundwater for TPH, VOCs, metals, anions, and total dissolved solids (TDS) immediately downgradient of the release location at monitoring well MW-27 on an annual basis in accordance with the *2018 Facility-Wide Groundwater Monitoring Work Plan* that was approved by OCD in an email on March 20, 2019. A Site Assessment/Characterization and Closure Form C-141 is included as Attachment A. If you have any questions or comments regarding this request, please feel free to contact me at 575-746-5487 or Robert Combs at 575-746-5382.

Sincerely,

Scott M. Denton
Environmental Manager

Attachments:

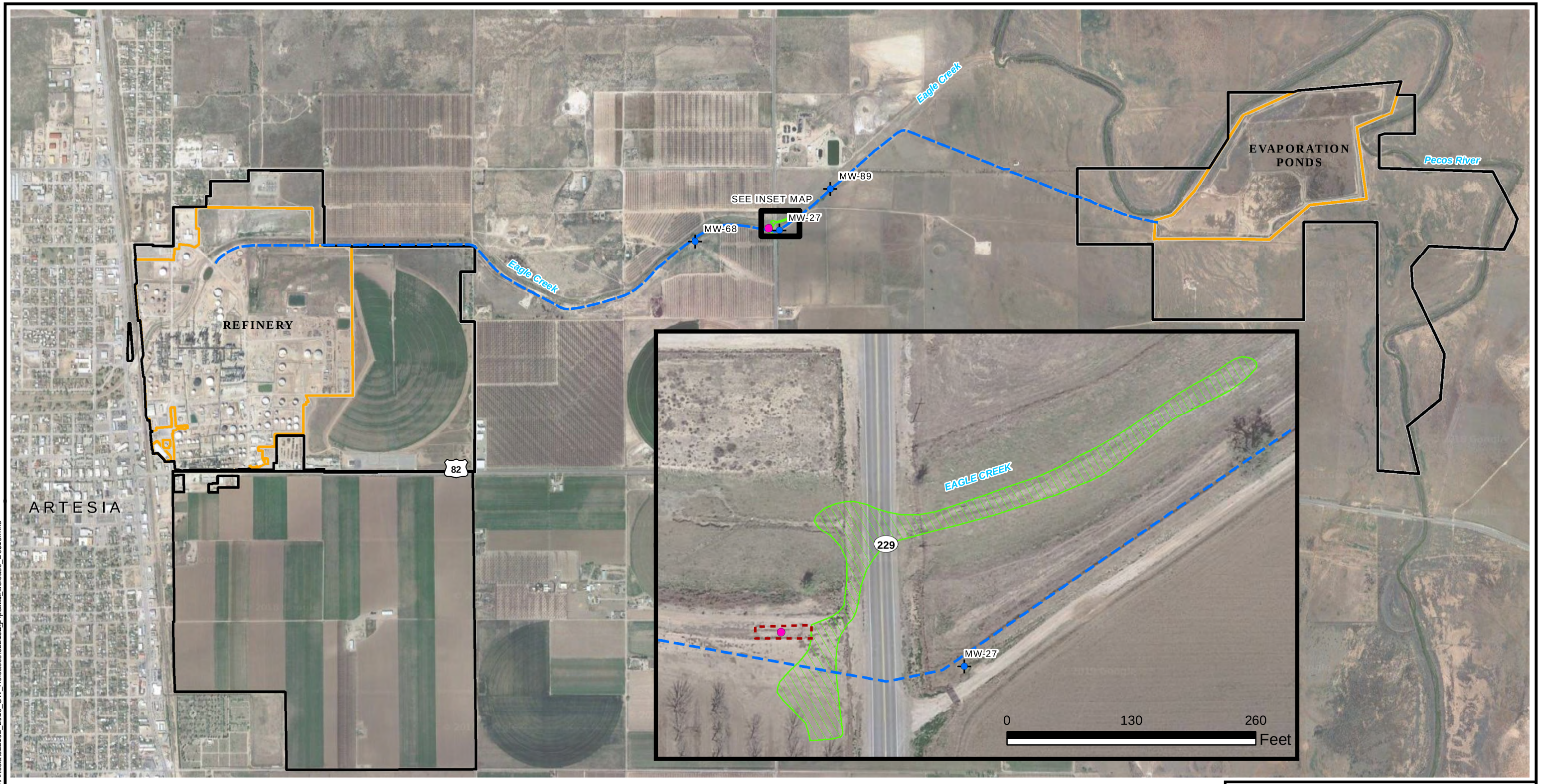
Figure 1 – December 29, 2018 Wastewater Effluent Pipeline Release, Release Location Map
Figure 2 – December 29, 2018 Wastewater Effluent Pipeline Release, Sample Location and Closure Criteria Exceedance Map

Table 1 – Wastewater Analytical Results
Table 2 – Surface Soil Analytical Results in Release Area and Background Area

Attachment A – Site Assessment/Characterization and Closure Form C-141
Attachment B – Analytical Laboratory Reports
Attachment C – Summary of Potential Fresh Water Wells Located within 0.5-miles of the Release Location
Attachment D – Chart of Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) Percentages of Detected Total Petroleum Hydrocarbons (TPH) Concentrations in Soil Samples that Exceeded Closure Criteria
Attachment E –Plot of Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) Total Petroleum Hydrocarbons (TPH) Concentrations in Soil Samples along the Topographical Low within Eagle Creek

cc: HollyFrontier: R. Combs, A. Sahba
TRC: J. Speer, J. Leik, C. Smith

FIGURES



LEGEND

- WASTEWATER EFFLUENT RELEASE LOCATION (12/29/18)
- APPROXIMATE EXTENT OF RELEASE
- FENCELINE
- NAVAJO PROPERTY BOUNDARY (FENCELINE SHOWN WHERE COINCIDENT)
- AREA EXCAVATED TO REPAIR PIPELINE, BARRICADED
- MONITORING WELL
- THREE-MILE DITCH

0 2,000 4,000 Feet

1 " = 2,000 '

1:24,000

PROJECT:

DECEMBER 29, 2018 WASTEWATER EFFLUENT PIPELINE RELEASE - RELEASE LOCATION MAP

TITLE:

HOLLYFRONTIER NAVAJO REFINING LLC ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

WALKER ENGINEERING SURVEY

DRAWN BY:	S. RAY	PROJ. NO.:	322192
CHECKED BY:			
APPROVED BY:			
DATE:	MARCH 2019		

FIGURE 1

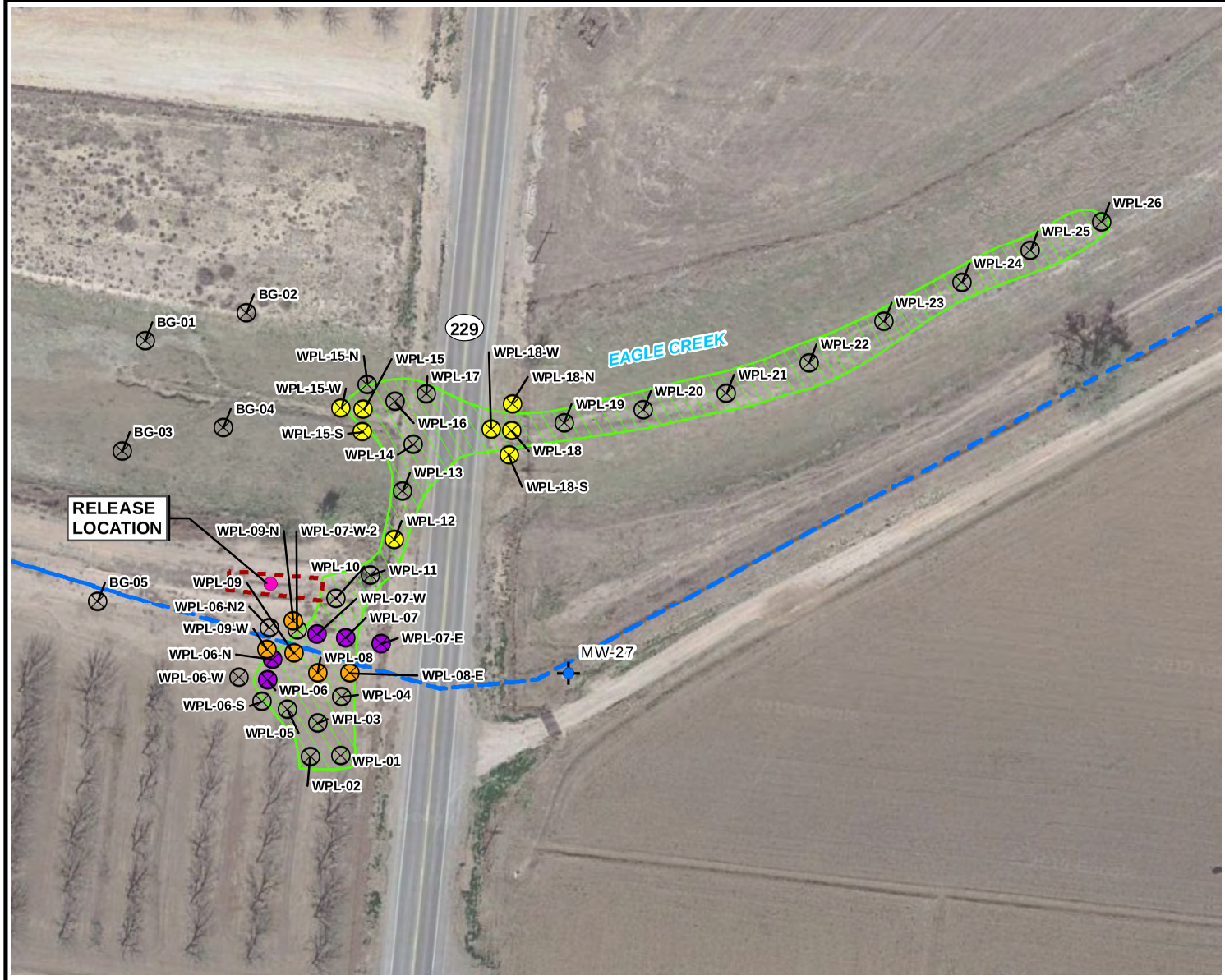
TRC
505 East Huntland Drive, Suite 250
Austin, TX 78752
Phone: 512.329.6080
www.trcsolutions.com

FILE NO.: 322192_Pipeline_Release_Dec18.mxd

Plot Date: 3/22/2019, 14:44:20 PM by SRAY -- LAYOUT: ANSI B (11"x17")
Path: S:\1-PROJECTS\HOLLY_ENERGY_PARTNERS\Artesia\322192_2018_GW_Releases\322192_Pipeline_Release_Dec18.mxd
Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere (Meter)

TRC - GIS

S:\1-PROJECTS\HOLLY_ENERGY_PARTNERS\Artesia\322192_2018_GW_Releases\322192_Pipeline_Release_Dec18_figure2.mxd -- Saved By: SRAY on 4/25/2019, 17:17:25 PM



LEGEND

- WASTEWATER EFFLUENT RELEASE LOCATION (12/29/18)
- MONITORING WELL
- SOIL SAMPLE LOCATION DID NOT EXCEED CLOSURE CRITERIA
- SOIL SAMPLE EXCEEDED TPH CLOSURE CRITERIA (100 mg/kg), ASSOCIATED WITH ROAD RUNOFF
- SOIL SAMPLE EXCEEDED TPH CLOSURE CRITERIA (100 mg/kg), ASSOCIATED WITH THREE-MILE DITCH
- SOIL SAMPLE EXCEEDED CHLORIDE CLOSURE CRITERIA (600 mg/kg), BUT CHLORIDE SPLP RESULT DID NOT EXCEED WQCC STANDARD (250 mg/L)
- THREE-MILE DITCH
- AREA EXCAVATED TO REPAIR PIPELINE, BARRICADED
- EXTENT OF RELEASE
- WPL-08 RELEASE AREA SAMPLE IDENTIFICATION
- BG-02 BACKGROUND AREA SAMPLE IDENTIFICATION

NOTES
1. SPLP = SOIL PRECIPITATION LEACHING PROCEDURE
2. WQCC = WATER QUALITY CONTROL COMMISSION

N

0 50 100
FEET

1 " = 100 '

1:1,200

TRC
505 East Huntland Drive
Suite #250
Austin, TX 78752
Phone: 512.329.6080
TRC - GIS

PROJECT:

DECEMBER 29, 2018 WASTEWATER EFFLUENT PIPELINE RELEASE - SAMPLE LOCATION AND CLOSURE CRITERIA EXCEEDANCE MAP

TITLE:

HOLLYFRONTIER NAVAJO REFINING LLC
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO

WORKING COPY

DRAWN BY:	S. RAY
CHECKED BY:	J. SPEER
APPROVED BY:	
DATE:	APRIL 2019
PROJ. NO.:	322192
FILE:	322192_Pipeline_Release_Dec18_figure2.mxd

FIGURE 2

Tables

Table 1. Wastewater Effluent Analytical Results

Wastewater Effluent Pipeline Release - December 29, 2018

HollyFrontier Navajo Refining LLC, GW-028, Artesia, New Mexico

			Sample ID:	Effluent Pipeline
			Date:	12/29/2018
Analyte	**Units**	**WQCC Standard**		**Result**
Volatile Organic Compounds (VOCs)				
1,1,1-Trichloroethane	mg/L	0.2	WQCC GW Human Health	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	0.01	WQCC GW Human Health	<0.0020
1,1,2-Trichloroethane	mg/L	0.005	WQCC GW Human Health	<0.0010
1,1-Dichloroethane	mg/L	0.025	WQCC GW Human Health	<0.0010
1,1-Dichloroethene	mg/L	0.007	WQCC GW Human Health	<0.0010
1,2-Dichlorobenzene	mg/L	0.6	WQCC GW Human Health	<0.0010
1,2-Dichloroethane	mg/L	0.005	WQCC GW Human Health	<0.0010
1,2-Dichloropropane	mg/L	0.005	WQCC GW Human Health	<0.0010
1,2,4-Trichlorobenzene	mg/L	0.07	WQCC GW Human Health	<0.0010
1,4-Dichlorobenzene	mg/L	0.075	WQCC GW Human Health	<0.0010
Benzene	mg/L	0.005	WQCC GW Human Health	<0.0010
Carbon Tetrachloride	mg/L	0.005	WQCC GW Human Health	<0.0010
Cis-1,2-Dichloroethene	mg/L	0.07	WQCC GW Human Health	<0.0010
Chloroform	mg/L	0.1	WQCC GW Human Health	<0.0010
Ethylbenzene	mg/L	0.7	WQCC GW Human Health	<0.0010
Methyl Tertiary-Butyl Ether	mg/L	0.1	WQCC GW Domestic	<0.0010
Methylene Chloride	mg/L	0.005	WQCC GW Human Health	<0.0030
1-Methylnaphthalene	mg/L	0.03	WQCC GW Human Health	<0.0040
2-Methylnaphthalene	mg/L	0.03	WQCC GW Human Health	<0.0040
Naphthalene	mg/L	0.03	WQCC GW Human Health	<0.0020
Styrene	mg/L	0.1	WQCC GW Human Health	<0.0010
Tetrachloroethene	mg/L	0.005	WQCC GW Human Health	<0.0010
Toluene	mg/L	1	WQCC GW Human Health	<0.0010
Total Xylenes	mg/L	0.62	WQCC GW Human Health	<0.0015
Trans-1,2-Dichloroethene	mg/L	0.1	WQCC GW Human Health	<0.0010
Trichloroethene	mg/L	0.005	WQCC GW Human Health	<0.0010
Vinyl Chloride	mg/L	0.002	WQCC GW Human Health	<0.0010
Semi-Volatile Organic Compounds (SVOCs)				
1-Methylnaphthalene	mg/L	0.03	WQCC GW Human Health	<0.015
2-Methylnaphthalene	mg/L	0.03	WQCC GW Human Health	<0.015
Atrazine	mg/L	0.003	WQCC GW Human Health	<0.00050
Naphthalene	mg/L	0.03	WQCC GW Human Health	<0.015
Benzo(a)pyrene	mg/L	0.0002	WQCC GW Human Health	**<0.00035**
Ethylene Dibromide	mg/L	0.00005	WQCC GW Human Health	<0.0000094
Pentachlorophenol	mg/L	0.001	WQCC GW Human Health	<0.00050
Total Petroleum Hydrocarbons (TPH)				
Gasoline Range Organics (GRO)	mg/L	--	Not Applicable	0.071
Diesel Range Organics (DRO)	mg/L	--	Not Applicable	2.8
Anions				
Chloride	mg/L	250.0	WQCC GW Domestic	**510**
Fluoride	mg/L	1.6	WQCC GW Human Health	**11**
Nitrite, Nitrate (as N)	mg/L	10.0	WQCC GW Human Health	<1.0
Sulfate	mg/L	600.0	WQCC GW Domestic	**1,700**

Table 1. Wastewater Effluent Analytical Results

Wastewater Effluent Pipeline Release - December 29, 2018

HollyFrontier Navajo Refining LLC, GW-028, Artesia, New Mexico

			Sample ID:	Effluent Pipeline
			Date:	12/29/2018
Analyte	**Units**	**WQCC Standard**		**Result**
Dissolved Metals				
Aluminum	mg/L	5.0	WQCC GW Irrigation	0.12
Antimony	mg/L	0.006	WQCC GW Human Health	0.0011
Arsenic	mg/L	0.01	WQCC GW Human Health	**0.022**
Barium	mg/L	2.0	WQCC GW Human Health	0.0098
Beryllium	mg/L	0.004	WQCC GW Human Health	<0.0010
Boron	mg/L	0.75	WQCC GW Irrigation	0.16
Cadmium	mg/L	0.005	WQCC GW Human Health	<0.00050
Chromium	mg/L	0.05	WQCC GW Human Health	0.0025
Cobalt	mg/L	0.05	WQCC GW Irrigation	<0.0060
Copper	mg/L	1.0	WQCC GW Domestic	<0.0010
Iron	mg/L	1.0	WQCC GW Domestic	0.45
Lead	mg/L	0.015	WQCC GW Human Health	<0.00050
Manganese	mg/L	0.2	WQCC GW Domestic	0.083
Molybdenum	mg/L	1.0	WQCC GW Irrigation	<0.0080
Nickel	mg/L	0.2	WQCC GW Irrigation	0.0055
Selenium	mg/L	0.05	WQCC GW Human Health	0.046
Silver	mg/L	0.05	WQCC GW Human Health	<0.0050
Thallium	mg/L	0.002	WQCC GW Human Health	<0.00050
Uranium	mg/L	0.03	WQCC GW Human Health	<0.00050
Zinc	mg/L	10.0	WQCC GW Domestic	0.12
Total Metals				
Mercury	mg/L	0.002	WQCC GW Human Health	<0.00020
Other Parameters				
Cyanide	mg/L	0.2	WQCC GW Human Health	0.0149
Polychlorinated biphenyls (PCBs)	mg/L	0.0005	WQCC GW Human Health	**<0.0050**
pH	pH units	6 - 9	WQCC GW Domestic	7.43
Phenols	mg/L	0.005	WQCC GW Domestic	**0.036**
Radioactivity (Ra 226 + Ra 228)	pCi/L	5	WQCC GW Human Health	1.338
Total Dissolved Solids	mg/L	1,000.0	WQCC GW Domestic	**3,270**

Notes:

623 Concentration exceeds applicable WQCC Standard

<0.125 Analyte detected below method detection limit, but method detection limit exceeds WQCC Standard

mg/L = milligrams per liter

NMAC = New Mexico Administrative Code

pCi/L = picocuries per liter

WQCC = New Mexico Water Quality Control Commission

WQCC GW Human Health = WQCC groundwater standard for human health exposure, NMAC 20.6.2.3103.A

WQCC GW Irrigation = WQCC groundwater standard for irrigation exposure, NMAC 20.6.2.3103.C

WQCC GW Domestic = WQCC groundwater standard for domestic exposure, NMAC 20.6.2.3103.B

Table 2. Surface Soil Analytical Results in Release Area and Background Area
Wastewater Effluent Pipeline Release - December 29, 2018
HollyFrontier Navajo Refining LLC, GW-028, Artesia, New Mexico

Analyte Group:				Total Petroleum Hydrocarbons				SVOCs	Anions				Metals	
Analyte:				**GRO**	**DRO**	**MRO**	**Total**	**Phenol**	**Chloride**	**SPLP Chloride**	**Fluoride**	**Sulfate**	**Arsenic**	**SPLP Arsenic**
Closure Criteria[(1)]:				--	--	--	**100**	**52.3**	**600**	**250**	**12,000**	**16,400**	--	**5**
Closure Criteria Source[(1)]:				Not Applicable			Table 1, 19.15.29 NMAC	Risk-based SSL, DAF 20	Table 1, 19.15.29 NMAC	20.6.2.3103 NMAC (WQCC)	NMGW- or MCL-based SSL, DAF	Max. Background Concentration	--	Table 1, 40 CFR 261.24
Units:				**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/L**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/L**
Sample ID	**Depth (ft bgs)**	**Dup**	**Date**	***Results***										
Release Area Samples														
WPL-01	0.50		1/4/2019	< 0.696	23.0 J	--	23.0	--	74.9	--	8.31	14,900	4.84	--
WPL-02	0.50		1/4/2019	< 0.739	18.9	--	18.9	--	479	--	12.4	**18,000**	4.76	--
WPL-03	0.50		1/4/2019	< 0.744	8.92	--	8.92	--	180	--	8.63	14,800	4.70	--
WPL-04	0.50		1/4/2019	< 0.789	13.1	--	13.1	--	213	--	15.5	**18,500**	5.92	--
WPL-05	0.50		1/4/2019	< 0.742	23.7	--	23.7	--	245	--	13.4	**17,100**	5.80	--
WPL-06	0.50		1/4/2019	< 0.744	33.6	--	33.6	--	**728**	--	11.6	**19,200**	5.52	--
WPL-06-2	2.0		3/14/2019	--	--	--	--	< 0.0870	274	--	--	--	--	--
WPL-06-N	0.50		3/14/2019	--	--	--	--	< 0.0786	**1,010**	36.9	--	--	--	--
WPL-06-N-2	0.50		3/14/2019	--	--	--	--	--	506	--	--	--	--	--
WPL-06-S	0.50		3/14/2019	--	--	--	--	< 0.0913	457	--	--	--	--	--
WPL-06-W	0.50		3/14/2019	--	--	--	--	< 0.0764	474	--	--	--	--	--
WPL-07	0.50		1/4/2019	< 0.761	24.4	--	24.4	--	**623**	--	21.1	**19,800**	7.79	--
WPL-07-2	2.0		3/14/2019	--	--	--	--	< 0.0164	458	--	--	--	--	--
WPL-07-2	2.0	**Dup**	3/14/2019	--	--	--	--	< 0.00838	461	--	--	--	--	--
WPL-07-E	0.50		3/14/2019	--	--	--	--	< 0.00794	**609**	--	--	--	--	--
WPL-07-W	0.50		3/14/2019	--	--	--	--	< 0.00776	**724**	47.3	--	--	--	--
WPL-07-W-2	0.50		3/14/2019	--	--	--	--	--	421	--	--	--	--	--
WPL-08	0.50		1/4/2019	< 0.833	141	--	**141**	--	458	--	21.2	**21,900**	7.25	--
WPL-08	0.50	**Dup**	1/4/2019	< 0.774	79.9	--	79.9	--	447	--	22.7	**18,300**	5.87	--
WPL-08-2	2.00		3/14/2019	0.114 J	532	532	**1,064**	< 0.0174	--	--	--	--	--	--
WPL-08-E	0.50		3/14/2019	0.115 J	164	248	**412**	< 0.0171	--	--	--	--	--	--
WPL-09	0.50		1/4/2019	< 0.687	232 J	--	**232**	--	52.3	--	16.4	13,200	**9.52**	<0.100
WPL-09-2	2.0		3/14/2019	0.156	7,500	5,700	**13,200**	< 0.422	--	--	--	--	--	--
WPL-09-2	2.0	**Dup**	3/14/2019	<0.0292	5,670	4,920	**10,590**	< 3.37	--	--	--	--	--	--
WPL-09-5	5.0		3/14/2019	--	6.11	5.17	11.3	--	--	--	--	--	--	--
WPL-09-N	0.50		3/14/2019	0.114	210	246	**456**	< 0.0153	--	--	--	--	--	--
WPL-09-W	0.50		3/14/2019	0.129	464	407	**871**	< 0.0791	--	--	--	--	--	--
WPL-10	0.50		1/4/2019	< 0.674	32.2	--	32.2	--	108	--	26.6	**17,800**	6.67	--
WPL-11	0.50		1/4/2019	< 0.657	39.9 J	--	39.9	--	34.4	--	14.7	15,900	4.87	--
WPL-12	0.50		1/4/2019	< 0.639	70.4	--	70.4	--	168	--	13.3	**16,700**	5.02	--
WPL-12	0.50		3/14/2019	--	59.8 J	107	**167**		--	--	--	--	--	--
WPL-13	0.50		1/4/2019	< 0.593	19.9 J	--	19.9	--	114	--	12.2	5,180	4.07	--
WPL-14	0.50		1/4/2019	< 0.696	23.6	--	23.6	--	174	--	8.69	3,780	4.41	--
WPL-15	0.50		1/4/2019	2.13 J	1,080	--	**1,082**	--	457	--	64.2	**25,000**	6.57	--
WPL-15-2	2.0		3/14/2019	0.0507 J	< 1.95	0.718 J	0.769	< 0.00840	--	--	--	--	--	--
WPL-15-2	2.0	**Dup**	3/14/2019	0.0306 J	4.20 J	1.60 J	5.83	< 0.0821	--	--	--	--	--	--
WPL-15-W	0.50		3/14/2019	0.0765 J	13.5	153	**167**	< 0.00879	--	--	--	--	--	--
WPL-15-N	0.50		3/14/2019	0.0859 J	2.71 J	3.62 J	6.42	< 0.00905	--	--	--	--	--	--
WPL-15-S	0.50		3/14/2019	0.0953 J	39.1	75.5	**115**	< 0.0888	--	--	--	--	--	--
WPL-16	0.50		1/4/2019	< 0.715	< 21.2	--	<21.2	--	145	--	10.2	8,480	3.84	--
WPL-16	0.50	**Dup**	1/4/2019	< 0.680	8.98	--	8.98	--	207	--	9.64	7,190	4.51	--
WPL-17	0.50		1/4/2019	< 0.699	< 41.5	--	< 41.5	--	114	--	7.73	6,710	4.12	--
WPL-18	0.50		1/4/2019	< 0.584	914	--	**914**	--	23.0	--	2.64	870	4.66	--
WPL-18-2	2.0		3/14/2019	0.104 J	< 2.03	1.19 J	1.29	<0.00876	--	--	--	--	--	--
WPL-18-N	0.50		3/14/2019	0.0616 J	< 38.3	100	**100**	< 0.0827	--	--	--	--	--	--
WPL-18-W	0.50		3/14/2019	< 0.0257	1,570	2,070	**3,640**	< 0.0822	--	--	--	--	--	--
WPL-18-S	0.50		3/14/2019	0.0539 J	48.1 J	122	**170**	< 0.0737	--	--	--	--	--	--
WPL-19	0.50		1/4/2019	< 0.643	74.8	--	74.8	--	83.6	--	10.4	418	3.38	--
WPL-19	0.50		3/14/2019	--	7.60	20.8	28.4	--	--	--	--	--	--	--
WPL-20	0.50		1/4/2019	< 0.647	< 38.4	--	< 38.4	--	95.8	--	12.4	432	2.95	--
WPL-21	0.50		1/4/2019	< 0.680	< 40.3	--	< 40.3	--	199	--	12.2	655	3.08	--
WPL-22	0.50		1/4/2019	< 0.668	< 39.7	--	< 39.7	--	150	--	12.2	508	3.02	--
WPL-23	0.50		1/4/2019	< 0.680	12.2 J	--	12.2	--	67.6	--	5.75	14,500	4.23	--
WPL-24	0.50		1/4/2019	< 0.692	14.3	--	14.3	--	67.8	--	7.07	**17,100**	6.22	--
WPL-25	0.50		1/4/2019	< 0.679	13.3 J	--	13.3	--	67.4	--	5.90	7,700	4.67	--
WPL-25	0.50	**Dup**	1/4/2019	< 0.673	7.83	--	7.83	--	73.5	--	7.89	2,560	5.58	--
WPL-26	0.50		1/4/2019	< 0.703	< 41.8	--	< 41.8	--	67.5	--	8.37	**18,500**	2.37 J	--
Background Area Samples														
BG-01	0.50		1/4/2019	< 0.690	18.1 J	--	18.1	--	108	--	8.97	91.3	3.70	--
BG-02	0.50		1/4/2019	< 0.664	17.9 J	--	17.9	--	64.9	--	9.86	114	4.06	--
BG-03	0.50		1/4/2019	< 0.686	< 10.2	--	< 10.2	--	65.4	--	15.9	104	2.50 J	--
BG-04	0.50		1/4/2019	< 0.700	< 41.6	--	< 41.6	--	66.6	--	10.5	213	3.93	--
BG-05	0.50		1/4/2019	< 0.629	14.5	--	14.5	--	193	--	21.2	16,400	**6.00**	<0.100

Notes:

623	Concentration exceeds applicable Closure Criteria.
0.125	Maximum detected arsenic concetration within Release Area or Background Area; associated samples analzyed for arsenic TCLP.

(1) Closure Criteria selected in accordance with Subparagraph (e) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC. See accompanying report for selection rationale.

-- = Not Analyzed

CFR = Code of Federal Regulations

DRO = Diesel Range Organics

Dup = Duplicate sample

ft bgs = feet below ground surface

GRO = Gasoline Range Organics

J = analyte detected in sample at a concentration above method detection limit, but below reporting detection limit; result is estimated.

mg/kg = milligrams per kilogram

NMAC = New Mexico Administrative Code

NMGW- or MCL-based SSL, DAF 20 = New Mexico Groundwater- or Maximum Contaminant Level-based Soil Screening Level with a dilution attenuation factor of 20.

Risk-based SSL, DAF 20 = New Mexico Risk-based Soil Screening Level with a dilution attentuation factor of 20.

SPLP = Synthetic Precipitation Leaching Procedure

WQCC GW Human Health = WQCC groundwater standard for human health exposure, 20.6.2.3103.A NMAC

WQCC DAF 20 = New Mexico Water Quality Control Commission groundwater standard (20.6.2.3103 NMAC) with a dilution attenuation factor of 20.

ATTACHMENT A

Form C-141 – Site Assessment/Characterization and Closure

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release? **Measured at nearby monitoring well MW-27 in October 2018.**	**17.81** (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse? **Release reached an ephemeral watercourse (Eagle Creek/Draw) that was dry at the time of the release.**	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring? **There is one potential domestic water well (RA-02661) located approximately 640 feet to the south-southwest and upgradient/crossgradient of the release area. There is one potential domestic or livestock water well (RA-10442) located approximately 1,000 feet southeast and crossgradient/downgradient from the release area.**	☒ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☒ Yes ☐ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
☐ Field data **Not Applicable**
☒ Data table of soil contaminant concentration data
☒ Depth to water determination
☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
☐ Boring or excavation logs **Not Applicable**
☐ Photographs including date and GIS information **Not Available**
☒ Topographic/Aerial maps
☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: **Robert Combs** Title: **Environmental Specialist**

Signature: [signature] Date: 4/29/19

email: **Robert.Combs@hollyfrontier.com** Telephone: **575-746-5382**

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection) **Not Applicable**

☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: **Robert Combs** Title: **Environmental Specialist**

Signature: Date: 4/29/19

email: Robert.Combs@hollyfrontier.com Telephone: **575-746-5382**

OCD Only

Received by: Date:

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Date:

Printed Name: Title:

ATTACHMENT B

Analytical Laboratory Reports

(on compact disc)

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

January 30, 2019

Scott Denton

Navajo Refining Company
P.O. Box 159
Artesia, NM 88211-0159
TEL: (575) 748-3311
FAX

RE: WWTP Effluent to Wells OrderNo.: 1901021

Dear Scott Denton:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/3/2019 for the analyses presented in the following report.

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

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

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

Sincerely,



Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WWTP Effluent to Wells
Project: WWTP Effluent to Wells
Collection Date: 12/29/2018 10:15:00 AM
Lab ID: 1901021-001 **Matrix:** AQUEOUS **Received Date:** 1/3/2019 9:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst:	**DBK**
Beryllium	ND	0.0010		mg/L	1	1/4/2019 11:11:33 AM	A56776
Antimony	0.0011	0.0010		mg/L	1	1/3/2019 6:38:11 PM	B56756
Arsenic	0.022	0.0010	*	mg/L	1	1/3/2019 6:38:11 PM	B56756
Cadmium	ND	0.00050		mg/L	1	1/3/2019 6:38:11 PM	B56756
Chromium	0.0025	0.0010		mg/L	1	1/3/2019 6:38:11 PM	B56756
Copper	ND	0.0010		mg/L	1	1/3/2019 6:38:11 PM	B56756
Lead	ND	0.00050		mg/L	1	1/3/2019 6:38:11 PM	B56756
Nickel	0.0055	0.0010		mg/L	1	1/3/2019 6:38:11 PM	B56756
Selenium	0.046	0.0010		mg/L	1	1/3/2019 6:38:11 PM	B56756
Thallium	ND	0.00050		mg/L	1	1/3/2019 6:38:11 PM	B56756
Uranium	ND	0.00050		mg/L	1	1/3/2019 6:38:11 PM	B56756
EPA 903.1: RA 226 AND EPA 904.0: RA 228-SUBBED						Analyst:	**PAC**
Radium-226	0.43	1.03		pCi/L	1	1/25/2019	R57314
Radium-226 ±	0.61	1.03		pCi/L	1	1/25/2019	R57314
Radium-228	0.738	0.803		pCi/L	1	1/25/2019	R57314
Radium-228 ±	0.431	0.803		pCi/L	1	1/25/2019	R57314
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Fluoride	11	0.50	*	mg/L	5	1/4/2019 1:28:26 PM	R56793
Chloride	510	25		mg/L	50	1/9/2019 10:27:21 PM	R56889
Bromide	1.2	0.50		mg/L	5	1/4/2019 1:28:26 PM	R56793
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	1/4/2019 1:28:26 PM	R56793
Sulfate	1700	25		mg/L	50	1/9/2019 10:27:21 PM	R56889
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/4/2019 6:37:04 PM	R56793
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	5000	5.0		µmhos/c	1	1/8/2019 12:26:56 PM	R56849
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	198.1	20.00		mg/L Ca	1	1/8/2019 12:26:56 PM	R56849
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	1/8/2019 12:26:56 PM	R56849
Total Alkalinity (as CaCO3)	198.1	20.00		mg/L Ca	1	1/8/2019 12:26:56 PM	R56849
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	3270	20.0	*	mg/L	1	1/7/2019 10:44:00 AM	42426
EPA 335.4: TOTAL CYANIDE SUBBED						Analyst:	**SUB**
Cyanide	0.0149	0.0100		mg/L	1	1/9/2019	R56928
SM4500-H+B / 9040C: PH						Analyst:	**JRR**
pH	7.43		H	pH units	1	1/8/2019 12:26:56 PM	R56849

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WWTP Effluent to Wells
Project: WWTP Effluent to Wells
Collection Date: 12/29/2018 10:15:00 AM
Lab ID: 1901021-001
Matrix: AQUEOUS
Received Date: 1/3/2019 9:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **bcv**	
Aluminum	0.12	0.020		mg/L	1	1/7/2019 3:36:51 PM	B56818
Barium	0.0098	0.0020		mg/L	1	1/7/2019 3:36:51 PM	B56818
Boron	0.16	0.040		mg/L	1	1/7/2019 3:36:51 PM	B56818
Calcium	64	1.0		mg/L	1	1/7/2019 3:36:51 PM	B56818
Cobalt	ND	0.0060		mg/L	1	1/7/2019 3:36:51 PM	B56818
Iron	0.45	0.020	*	mg/L	1	1/7/2019 3:36:51 PM	B56818
Magnesium	20	1.0		mg/L	1	1/7/2019 3:36:51 PM	B56818
Manganese	0.083	0.0020	*	mg/L	1	1/7/2019 3:36:51 PM	B56818
Molybdenum	ND	0.0080		mg/L	1	1/7/2019 3:36:51 PM	B56818
Potassium	74	1.0		mg/L	1	1/7/2019 3:36:51 PM	B56818
Silver	ND	0.0050		mg/L	1	1/7/2019 3:36:51 PM	B56818
Sodium	930	20		mg/L	20	1/7/2019 5:19:48 PM	B56818
Vanadium	ND	0.050		mg/L	1	1/7/2019 3:36:51 PM	B56818
Zinc	0.12	0.010		mg/L	1	1/7/2019 3:36:51 PM	B56818
EPA METHOD 245.1: MERCURY						Analyst: **pmf**	
Mercury	ND	0.00020		mg/L	1	1/9/2019 2:15:20 PM	42492
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.0094		µg/L	1	1/9/2019 11:40:58 AM	42484
EPA METHOD 8082A: PCB'S						Analyst: **TOM**	
Aroclor 1016	ND	5.0		µg/L	1	1/15/2019 10:29:32 AM	42447
Aroclor 1221	ND	5.0		µg/L	1	1/15/2019 10:29:32 AM	42447
Aroclor 1232	ND	5.0		µg/L	1	1/15/2019 10:29:32 AM	42447
Aroclor 1242	ND	5.0		µg/L	1	1/15/2019 10:29:32 AM	42447
Aroclor 1248	ND	5.0		µg/L	1	1/15/2019 10:29:32 AM	42447
Aroclor 1254	ND	5.0		µg/L	1	1/15/2019 10:29:32 AM	42447
Aroclor 1260	ND	5.0		µg/L	1	1/15/2019 10:29:32 AM	42447
Surr: Decachlorobiphenyl	67.6	34.1-101		%Rec	1	1/15/2019 10:29:32 AM	42447
Surr: Tetrachloro-m-xylene	66.4	22.9-104		%Rec	1	1/15/2019 10:29:32 AM	42447
EPA METHOD 8015M/D: DIESEL RANGE						Analyst: **lrm**	
Diesel Range Organics (DRO)	2.8	1.0		mg/L	1	1/7/2019 12:38:48 PM	42444
Surr: DNOP	100	76.7-135		%Rec	1	1/7/2019 12:38:48 PM	42444
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.071	0.050		mg/L	1	1/4/2019 11:48:45 AM	G56789
Surr: BFB	93.8	72.8-125		%Rec	1	1/4/2019 11:48:45 AM	G56789
EPA METHOD 8310: PAHS						Analyst: **TOM**	
Naphthalene	ND	15		µg/L	1	1/15/2019 10:02:02 AM	42446

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WWTP Effluent to Wells
Project: WWTP Effluent to Wells
Collection Date: 12/29/2018 10:15:00 AM
Lab ID: 1901021-001 **Matrix:** AQUEOUS **Received Date:** 1/3/2019 9:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8310: PAHS						Analyst: **TOM**	
1-Methylnaphthalene	ND	15		µg/L	1	1/15/2019 10:02:02 AM	42446
2-Methylnaphthalene	ND	15		µg/L	1	1/15/2019 10:02:02 AM	42446
Benzo(a)pyrene	ND	0.35		µg/L	1	1/15/2019 10:02:02 AM	42446
Surr: Benzo(e)pyrene	60.6	48.8-93.3		%Rec	1	1/15/2019 10:02:02 AM	42446
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Toluene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Ethylbenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,3,5-Trimethylbenzene	3.5	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Naphthalene	ND	2.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1-Methylnaphthalene	ND	4.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
2-Methylnaphthalene	ND	4.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Acetone	28	10		µg/L	1	1/3/2019 2:23:13 PM	W56753
Bromobenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Bromodichloromethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Bromoform	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Bromomethane	ND	3.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
2-Butanone	ND	10		µg/L	1	1/3/2019 2:23:13 PM	W56753
Carbon disulfide	ND	10		µg/L	1	1/3/2019 2:23:13 PM	W56753
Carbon Tetrachloride	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Chlorobenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Chloroethane	ND	2.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Chloroform	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Chloromethane	ND	3.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
2-Chlorotoluene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
4-Chlorotoluene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
cis-1,2-DCE	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Dibromochloromethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Dibromomethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: WWTP Effluent to Wells
Project: WWTP Effluent to Wells
Collection Date: 12/29/2018 10:15:00 AM
Lab ID: 1901021-001 **Matrix:** AQUEOUS **Received Date:** 1/3/2019 9:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,1-Dichloroethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,1-Dichloroethene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2-Dichloropropane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,3-Dichloropropane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
2,2-Dichloropropane	ND	2.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,1-Dichloropropene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Hexachlorobutadiene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
2-Hexanone	ND	10		µg/L	1	1/3/2019 2:23:13 PM	W56753
Isopropylbenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
4-Isopropyltoluene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
4-Methyl-2-pentanone	ND	10		µg/L	1	1/3/2019 2:23:13 PM	W56753
Methylene Chloride	ND	3.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
n-Butylbenzene	ND	3.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
n-Propylbenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
sec-Butylbenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Styrene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
tert-Butylbenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
trans-1,2-DCE	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Trichlorofluoromethane	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Vinyl chloride	ND	1.0		µg/L	1	1/3/2019 2:23:13 PM	W56753
Xylenes, Total	ND	1.5		µg/L	1	1/3/2019 2:23:13 PM	W56753
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	1/3/2019 2:23:13 PM	W56753
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	1/3/2019 2:23:13 PM	W56753
Surr: Dibromofluoromethane	100	70-130		%Rec	1	1/3/2019 2:23:13 PM	W56753
Surr: Toluene-d8	106	70-130		%Rec	1	1/3/2019 2:23:13 PM	W56753
TOTAL PHENOLICS BY SW-846 9067						Analyst: **CLP**	
Phenolics	36	2.5		µg/L	1	1/11/2019	42566
EPA 8270D: SEMIVOLATILES						Analyst: **SUB**	

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Hall Environmental Analysis Laboratory, Inc.

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Project: WWTP Effluent to Wells
Collection Date: 12/29/2018 10:15:00 AM
Lab ID: 1901021-001 **Matrix:** AQUEOUS **Received Date:** 1/3/2019 9:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 8270D: SEMIVOLATILES							Analyst: **SUB**
Atrazine	ND	0.50		µg/L	1	1/9/2019	R56928
Pentachlorophenol	ND	0.50		µg/L	1	1/9/2019	R56928

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: WWTP Effluent to Wells
Collection Date:
Lab ID: 1901021-002
Matrix: TRIP BLANK
Received Date: 1/3/2019 9:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8011/504.1: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.0095		µg/L	1	1/9/2019 11:55:53 AM	42484
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
Benzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Toluene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Ethylbenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Naphthalene	ND	2.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1-Methylnaphthalene	ND	4.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
2-Methylnaphthalene	ND	4.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Acetone	17	10		µg/L	1	1/3/2019 3:51:17 PM	W56753
Bromobenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Bromodichloromethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Bromoform	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Bromomethane	ND	3.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
2-Butanone	ND	10		µg/L	1	1/3/2019 3:51:17 PM	W56753
Carbon disulfide	ND	10		µg/L	1	1/3/2019 3:51:17 PM	W56753
Carbon Tetrachloride	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Chlorobenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Chloroethane	ND	2.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Chloroform	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Chloromethane	ND	3.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
2-Chlorotoluene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
4-Chlorotoluene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
cis-1,2-DCE	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Dibromochloromethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Dibromomethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2-Dichlorobenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,3-Dichlorobenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,4-Dichlorobenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Dichlorodifluoromethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,1-Dichloroethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,1-Dichloroethene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2-Dichloropropane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Navajo Refining Company
Client Sample ID: TRIP BLANK
Project: WWTP Effluent to Wells
Collection Date:
Lab ID: 1901021-002
Matrix: TRIP BLANK
Received Date: 1/3/2019 9:05:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **DJF**	
1,3-Dichloropropane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
2,2-Dichloropropane	ND	2.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,1-Dichloropropene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Hexachlorobutadiene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
2-Hexanone	ND	10		µg/L	1	1/3/2019 3:51:17 PM	W56753
Isopropylbenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
4-Isopropyltoluene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
4-Methyl-2-pentanone	ND	10		µg/L	1	1/3/2019 3:51:17 PM	W56753
Methylene Chloride	ND	3.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
n-Butylbenzene	ND	3.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
n-Propylbenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
sec-Butylbenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Styrene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
tert-Butylbenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
trans-1,2-DCE	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,1,1-Trichloroethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,1,2-Trichloroethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Trichloroethene (TCE)	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Trichlorofluoromethane	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
1,2,3-Trichloropropane	ND	2.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Vinyl chloride	ND	1.0		µg/L	1	1/3/2019 3:51:17 PM	W56753
Xylenes, Total	ND	1.5		µg/L	1	1/3/2019 3:51:17 PM	W56753
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	1	1/3/2019 3:51:17 PM	W56753
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	1/3/2019 3:51:17 PM	W56753
Surr: Dibromofluoromethane	97.7	70-130		%Rec	1	1/3/2019 3:51:17 PM	W56753
Surr: Toluene-d8	103	70-130		%Rec	1	1/3/2019 3:51:17 PM	W56753

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **MB-B**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B56818**	RunNo: **56818**
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1901735** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Boron	ND	0.040								
Calcium	ND	1.0								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B56818**	RunNo: **56818**
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1901736** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	85	115			
Barium	0.49	0.0020	0.5000	0	97.6	85	115			
Boron	0.52	0.040	0.5000	0	104	85	115			
Calcium	50	1.0	50.00	0	99.8	85	115			
Cobalt	0.48	0.0060	0.5000	0	97.0	85	115			
Iron	0.50	0.020	0.5000	0	99.5	85	115			
Magnesium	50	1.0	50.00	0	101	85	115			
Manganese	0.49	0.0020	0.5000	0	98.8	85	115			
Molybdenum	0.49	0.0080	0.5000	0	98.7	85	115			
Potassium	50	1.0	50.00	0	100	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Sodium	50	1.0	50.00	0	100	85	115			
Vanadium	0.50	0.050	0.5000	0	101	85	115			
Zinc	0.50	0.010	0.5000	0	99.0	85	115			

Sample ID **LLLCS-B**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B56818**	RunNo: **56818**
Prep Date:	Analysis Date: **1/7/2019**	SeqNo: **1901737** Units: **mg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**LLLCS-B**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Dissolved Metals**
Client ID:	**BatchQC**	Batch ID:	**B56818**	RunNo:	**56818**
Prep Date:		Analysis Date:	**1/7/2019**	SeqNo:	**1901737** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	100	50	150			
Barium	ND	0.0020	0.002000	0	99.4	50	150			
Boron	ND	0.040	0.04000	0	99.4	50	150			
Calcium	ND	1.0	0.5000	0	101	50	150			
Cobalt	0.0067	0.0060	0.006000	0	112	50	150			
Iron	0.022	0.020	0.02000	0	109	50	150			
Magnesium	ND	1.0	0.5000	0	103	50	150			
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Molybdenum	ND	0.0080	0.008000	0	99.6	50	150			
Potassium	ND	1.0	0.5000	0	100	50	150			
Silver	ND	0.0050	0.005000	0	97.7	50	150			
Sodium	ND	1.0	0.5000	0	97.5	50	150			
Vanadium	ND	0.050	0.01000	0	105	50	150			
Zinc	ND	0.010	0.005000	0	108	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B56756**	RunNo: **56756**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899365** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Cadmium	ND	0.00050								
Chromium	ND	0.0010								
Copper	ND	0.0010								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Thallium	ND	0.00050								
Uranium	ND	0.00050								

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B56756**	RunNo: **56756**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899366** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010	0.001000	0	58.7	50	150			
Arsenic	ND	0.0010	0.001000	0	93.2	50	150			
Cadmium	ND	0.00050	0.0005000	0	93.7	50	150			
Chromium	ND	0.0010	0.001000	0	85.1	50	150			
Copper	ND	0.0010	0.001000	0	90.9	50	150			
Lead	ND	0.00050	0.0005000	0	94.2	50	150			
Nickel	0.0012	0.0010	0.001000	0	115	50	150			
Selenium	ND	0.0010	0.001000	0	85.1	50	150			
Thallium	ND	0.00050	0.0005000	0	87.4	50	150			
Uranium	ND	0.00050	0.0005000	0	91.0	50	150			

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B56756**	RunNo: **56756**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899367** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.6	85	115			
Arsenic	0.024	0.0010	0.02500	0	97.5	85	115			
Cadmium	0.012	0.00050	0.01250	0	98.3	85	115			
Chromium	0.024	0.0010	0.02500	0	95.6	85	115			
Copper	0.024	0.0010	0.02500	0	97.2	85	115			
Lead	0.012	0.00050	0.01250	0	96.9	85	115			
Nickel	0.024	0.0010	0.02500	0	97.0	85	115			
Selenium	0.024	0.0010	0.02500	0	96.5	85	115			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B56756**	RunNo: **56756**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899367** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.012	0.00050	0.01250	0	97.5	85	115			
Uranium	0.012	0.00050	0.01250	0	94.4	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**MB-42492**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**42492**	RunNo:	**56867**					
Prep Date:	**1/8/2019**	Analysis Date:	**1/9/2019**	SeqNo:	**1903035**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-42492**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**42492**	RunNo:	**56867**					
Prep Date:	**1/8/2019**	Analysis Date:	**1/9/2019**	SeqNo:	**1903036**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56793**	RunNo: **56793**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900899** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	102	90	110			
Bromide	2.4	0.10	2.500	0	94.6	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.1	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.5	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R56889**	RunNo: **56889**
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903689** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R56889**	RunNo: **56889**
Prep Date:	Analysis Date: **1/9/2019**	SeqNo: **1903690** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.9	90	110			
Sulfate	9.4	0.50	10.00	0	94.1	90	110			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**LCS-42484**	SampType:	**LCS**		TestCode:	**EPA Method 8011/504.1: EDB**				
Client ID:	**LCSW**	Batch ID:	**42484**		RunNo:	**56859**				
Prep Date:	**1/9/2019**	Analysis Date:	**1/9/2019**		SeqNo:	**1902948**	Units:	**µg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.097	0.010	0.1000	0	96.6	70	130			

Sample ID	**LCSD-42484**	SampType:	**LCSD**		TestCode:	**EPA Method 8011/504.1: EDB**				
Client ID:	**LCSS02**	Batch ID:	**42484**		RunNo:	**56859**				
Prep Date:	**1/9/2019**	Analysis Date:	**1/9/2019**		SeqNo:	**1902949**	Units:	**µg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	0.093	0.010	0.1000	0	93.1	70	130	3.68	20	

Sample ID	**MB-42484**	SampType:	**MBLK**		TestCode:	**EPA Method 8011/504.1: EDB**				
Client ID:	**PBW**	Batch ID:	**42484**		RunNo:	**56859**				
Prep Date:	**1/9/2019**	Analysis Date:	**1/9/2019**		SeqNo:	**1902952**	Units:	**µg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.010								

Qualifiers:

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **LCS-42444**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **LCSW**	Batch ID: **42444**	RunNo: **56804**
Prep Date: **1/4/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901154** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.0	1.0	5.000	0	99.2	70	130			
Surr: DNOP	0.53		0.5000		106	76.7	135			

Sample ID **MB-42444**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **PBW**	Batch ID: **42444**	RunNo: **56804**
Prep Date: **1/4/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901155** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Surr: DNOP	0.98		1.000		98.1	76.7	135			

Sample ID **1901021-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **WWTP Effluent to**	Batch ID: **42444**	RunNo: **56804**
Prep Date: **1/4/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901233** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	7.8	1.0	5.000	2.833	98.7	82.8	143			
Surr: DNOP	0.52		0.5000		105	76.7	135			

Sample ID **1901021-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range**
Client ID: **WWTP Effluent to**	Batch ID: **42444**	RunNo: **56804**
Prep Date: **1/4/2019**	Analysis Date: **1/7/2019**	SeqNo: **1901234** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	7.2	1.0	5.000	2.833	88.0	82.8	143	7.15	20	
Surr: DNOP	0.50		0.5000		99.6	76.7	135	0	0	

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G56789**	RunNo: **56789**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900697** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		92.7	72.8	125			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G56789**	RunNo: **56789**
Prep Date:	Analysis Date: **1/4/2019**	SeqNo: **1900698** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	94.8	77.7	130			
Surr: BFB	22		20.00		108	72.8	125			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**MB-42447**	SampType:	**MBLK**		TestCode:	**EPA Method 8082A: PCB's**				
Client ID:	**PBW**	Batch ID:	**42447**		RunNo:	**56988**				
Prep Date:	**1/4/2019**	Analysis Date:	**1/15/2019**		SeqNo:	**1907059**	Units:	**µg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	1.0								
Aroclor 1221	ND	1.0								
Aroclor 1232	ND	1.0								
Aroclor 1242	ND	1.0								
Aroclor 1248	ND	1.0								
Aroclor 1254	ND	1.0								
Aroclor 1260	ND	1.0								
Surr: Decachlorobiphenyl	1.5		2.500		58.4	34.1	101			
Surr: Tetrachloro-m-xylene	1.6		2.500		62.8	22.9	104			

Sample ID	**LCS-42447**	SampType:	**LCS**		TestCode:	**EPA Method 8082A: PCB's**				
Client ID:	**LCSW**	Batch ID:	**42447**		RunNo:	**56988**				
Prep Date:	**1/4/2019**	Analysis Date:	**1/15/2019**		SeqNo:	**1907060**	Units:	**µg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	2.5	1.0	5.000	0	49.3	25.9	120			
Aroclor 1260	2.6	1.0	5.000	0	51.4	38.4	134			
Surr: Decachlorobiphenyl	1.3		2.500		50.4	34.1	101			
Surr: Tetrachloro-m-xylene	1.2		2.500		49.6	22.9	104			

Sample ID	**LCSD-42447**	SampType:	**LCSD**		TestCode:	**EPA Method 8082A: PCB's**				
Client ID:	**LCSS02**	Batch ID:	**42447**		RunNo:	**56988**				
Prep Date:	**1/4/2019**	Analysis Date:	**1/15/2019**		SeqNo:	**1907061**	Units:	**µg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	4.3	1.0	5.000	0	85.8	25.9	120	54.0	17.9	R
Aroclor 1260	4.4	1.0	5.000	0	87.1	38.4	134	51.5	16.2	R
Surr: Decachlorobiphenyl	2.1		2.500		82.4	34.1	101	0	0	
Surr: Tetrachloro-m-xylene	2.1		2.500		82.8	22.9	104	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W56753**	RunNo: **56753**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899264** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company
Project: WWTP Effluent to Wells

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W56753**	RunNo: **56753**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899264** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	11		10.00		108	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W56753**	RunNo: **56753**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899265** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.4	70	130			
Toluene	20	1.0	20.00	0	100	70	130			
Chlorobenzene	20	1.0	20.00	0	98.2	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W56753**	RunNo: **56753**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899265** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	19	1.0	20.00	0	95.4	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	83.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.2	70	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Sample ID **1901021-001b ms**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **WWTP Effluent to**	Batch ID: **W56753**	RunNo: **56753**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899268** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	92.6	70	130			
Toluene	24	1.0	20.00	0	122	70	130			
Chlorobenzene	20	1.0	20.00	0	99.2	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	99.5	67.6	130			
Trichloroethene (TCE)	17	1.0	20.00	0	83.2	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID **1901021-001b msd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **WWTP Effluent to**	Batch ID: **W56753**	RunNo: **56753**
Prep Date:	Analysis Date: **1/3/2019**	SeqNo: **1899269** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.2	70	130	3.74	20	
Toluene	24	1.0	20.00	0	118	70	130	2.85	20	
Chlorobenzene	19	1.0	20.00	0	93.1	70	130	6.31	20	
1,1-Dichloroethene	19	1.0	20.00	0	97.0	67.6	130	2.57	20	
Trichloroethene (TCE)	16	1.0	20.00	0	82.1	70	130	1.32	20	
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0	
Surr: Toluene-d8	10		10.00		101	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**MB-R56928**	SampType:	**MBLK**	TestCode:	**EPA 8270D: Semivolatiles**
Client ID:	**PBW**	Batch ID:	**R56928**	RunNo:	**56928**
Prep Date:		Analysis Date:	**1/9/2019**	SeqNo:	**1904744** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Atrazine	ND	0.50								
Pentachlorophenol	ND	0.50								

Sample ID	**LCS-R56928**	SampType:	**LCS**	TestCode:	**EPA 8270D: Semivolatiles**
Client ID:	**LCSW**	Batch ID:	**R56928**	RunNo:	**56928**
Prep Date:		Analysis Date:	**1/9/2019**	SeqNo:	**1904745** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Atrazine	4.2		5.000	0	84.4	80	120			
Pentachlorophenol	4.5		5.000	0	90.8	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company
Project: WWTP Effluent to Wells

Sample ID **MB-42446**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **42446**	RunNo: **56987**
Prep Date: **1/4/2019**	Analysis Date: **1/15/2019**	SeqNo: **1907392** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	3.0								
1-Methylnaphthalene	ND	3.0								
2-Methylnaphthalene	ND	3.0								
Benzo(a)pyrene	ND	0.070								
Surr: Benzo(e)pyrene	13		20.00		67.0	48.8	93.3			

Sample ID **LCS-42446**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **42446**	RunNo: **56987**
Prep Date: **1/4/2019**	Analysis Date: **1/15/2019**	SeqNo: **1907393** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	49	3.0	80.00	0	61.2	23.8	80.3			
1-Methylnaphthalene	52	3.0	80.20	0	64.4	23.4	81.9			
2-Methylnaphthalene	52	3.0	80.00	0	65.0	22.9	81.4			
Benzo(a)pyrene	0.36	0.070	0.5020	0	71.7	47.3	98.2			
Surr: Benzo(e)pyrene	16		20.00		78.2	48.8	93.3			

Sample ID **LCSD-42446**	SampType: **LCSD**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS02**	Batch ID: **42446**	RunNo: **56987**
Prep Date: **1/4/2019**	Analysis Date: **1/15/2019**	SeqNo: **1907394** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	21	3.0	80.00	0	26.0	23.8	80.3	80.6	34.8	R
1-Methylnaphthalene	23	3.0	80.20	0	28.6	23.4	81.9	77.0	33	R
2-Methylnaphthalene	22	3.0	80.00	0	27.8	22.9	81.4	80.0	33.3	R
Benzo(a)pyrene	0.15	0.070	0.5020	0	29.9	47.3	98.2	82.4	33.2	RS
Surr: Benzo(e)pyrene	6.2		20.00		31.2	48.8	93.3	0		S

Sample ID **MB-42658**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBW**	Batch ID: **42658**	RunNo: **57147**
Prep Date: **1/17/2019**	Analysis Date: **1/22/2019**	SeqNo: **1912148** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Benzo(e)pyrene	11		20.00		53.0	48.8	93.3			

Sample ID **LCS-42658**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSW**	Batch ID: **42658**	RunNo: **57147**
Prep Date: **1/17/2019**	Analysis Date: **1/22/2019**	SeqNo: **1912149** Units: **%Rec**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**LCS-42658**	SampType: **LCS**			TestCode: **EPA Method 8310: PAHs**					
Client ID:	**LCSW**	Batch ID: **42658**			RunNo: **57147**					
Prep Date:	**1/17/2019**	Analysis Date: **1/22/2019**			SeqNo: **1912149**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Benzo(e)pyrene		13		20.00		63.8	48.8	93.3			

Sample ID	**LCSD-42658**	SampType: **LCSD**			TestCode: **EPA Method 8310: PAHs**					
Client ID:	**LCSS02**	Batch ID: **42658**			RunNo: **57147**					
Prep Date:	**1/17/2019**	Analysis Date: **1/22/2019**			SeqNo: **1912150**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Benzo(e)pyrene		11		20.00		55.1	48.8	93.3	0		

Sample ID	**LCS-42658**	SampType: **LCS**			TestCode: **EPA Method 8310: PAHs**					
Client ID:	**LCSW**	Batch ID: **42658**			RunNo: **57294**					
Prep Date:	**1/17/2019**	Analysis Date: **1/28/2019**			SeqNo: **1916361**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Benzo(e)pyrene		11		20.00		54.2	48.8	93.3			

Sample ID	**LCSD-42658**	SampType: **LCSD**			TestCode: **EPA Method 8310: PAHs**					
Client ID:	**LCSS02**	Batch ID: **42658**			RunNo: **57294**					
Prep Date:	**1/17/2019**	Analysis Date: **1/28/2019**			SeqNo: **1916368**		Units: **%Rec**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Benzo(e)pyrene		14		20.00		71.0	48.8	93.3	0		

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**MB-42566**	SampType:	**MBLK**		TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**PBW**	Batch ID:	**42566**		RunNo:	**56942**					
Prep Date:	**1/11/2019**	Analysis Date:	**1/11/2019**		SeqNo:	**1905059**	Units:	**µg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics		ND	2.5								

Sample ID	**LCS-42566**	SampType:	**LCS**		TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**LCSW**	Batch ID:	**42566**		RunNo:	**56942**					
Prep Date:	**1/11/2019**	Analysis Date:	**1/11/2019**		SeqNo:	**1905060**	Units:	**µg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics		21	2.5	20.00	0	107	53.3	138			

Sample ID	**LCSD-42566**	SampType:	**LCSD**		TestCode:	**Total Phenolics by SW-846 9067**					
Client ID:	**LCSS02**	Batch ID:	**42566**		RunNo:	**56942**					
Prep Date:	**1/11/2019**	Analysis Date:	**1/11/2019**		SeqNo:	**1905061**	Units:	**µg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Phenolics		21	2.5	20.00	0	106	53.3	138	0.926	21	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**MB-R56928**	SampType:	**MBLK**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**PBW**	Batch ID:	**R56928**	RunNo:	**56928**					
Prep Date:		Analysis Date:	**1/9/2019**	SeqNo:	**1904741**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	ND	0.0100								

Sample ID	**LCS-R56928**	SampType:	**LCS**	TestCode:	**EPA 335.4: Total Cyanide Subbed**					
Client ID:	**LCSW**	Batch ID:	**R56928**	RunNo:	**56928**					
Prep Date:		Analysis Date:	**1/9/2019**	SeqNo:	**1904742**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cyanide	0.513		0.5000	0	103	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**
30-Jan-19

Client: Navajo Refining Company
Project: WWTP Effluent to Wells

Sample ID	**lcs-1 99.0uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R56849**		RunNo: **56849**						
Prep Date:		Analysis Date: **1/8/2019**		SeqNo: **1902563**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		98	5.0	99.00	0	99.5	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**MB-R57314**	SampType:	**MBLK**	TestCode:	**EPA 903.1: Ra 226 and EPA 904.0: Ra 228-Subbed**
Client ID:	**PBW**	Batch ID:	**R57314**	RunNo:	**57314**
Prep Date:		Analysis Date:	**1/25/2019**	SeqNo:	**1917317** Units: **pCi/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Radium-226	0.385	0.715								
Radium-226 ±	0.455	0.715								
Radium-228	0.349	0.774								
Radium-228 ±	0.372	0.774								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**
30-Jan-19

Client: Navajo Refining Company
Project: WWTP Effluent to Wells

Sample ID	**mb-1 alk**	SampType:	**MBLK**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R56849**	RunNo:	**56849**					
Prep Date:		Analysis Date:	**1/8/2019**	SeqNo:	**1902540**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	**lcs-1 alk**	SampType:	**LCS**	TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R56849**	RunNo:	**56849**					
Prep Date:		Analysis Date:	**1/8/2019**	SeqNo:	**1902541**	Units:	**mg/L CaCO3**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	77.16	20.00	80.00	0	96.4	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1901021**

30-Jan-19

Client: Navajo Refining Company

Project: WWTP Effluent to Wells

Sample ID	**MB-42426**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**42426**		RunNo:	**56796**					
Prep Date:	**1/3/2019**	Analysis Date:	**1/7/2019**		SeqNo:	**1901042**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids		ND	20.0								

Sample ID	**LCS-42426**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**42426**		RunNo:	**56796**					
Prep Date:	**1/3/2019**	Analysis Date:	**1/7/2019**		SeqNo:	**1901043**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids		1000	20.0	1000	0	100	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **NAVAJO REFINING CO** Work Order Number: **1901021** RcptNo: **1**

Received By: **Victoria Zellar** **1/3/2019 9:05:00 AM** Victoria Zellar

Completed By: **Erin Melendrez** **1/3/2019 9:29:59 AM**

Reviewed By: AT 01/03/19
LB: DAD 1/3/19

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☑ No ☐ No VOA Vials ☐
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: 6 (1 (<2 or >12 unless noted)
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐ Adjusted? NO
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐ Checked by: DAD 1/3/19

Special Handling (if applicable)

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

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

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.8	Good	Yes			

Chain-of-Custody Record

Client: Navajo Refinery

Mailing Address: P.O. Box 159 Artesia,

NM 88211-0159

Phone #: 575-748-3311

email or Fax#: 575-746-5451

QA/QC Package:

X Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time: Please rush high lighted

X Standard X Rush _____

Project Name:

WWTP Effluent to Wells

Project #: P.O. # 231642

Project Manager:

Scott Denton

Robert Combs

Sampler: Jaron Morris

On Ice: X Yes ☐ No

Sample Temperature: 0.2°

ENM 1/3/19

HEAL No. 1901021

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	8260B:WQCC List VOCs	8270C: WQCC list SVOCs	6010B: WQCC Metals +Va	335.4: Total Cyanide	7470: Mercury	8015: GRO, DRO	8082: PCBs	Radioactivity (EPA 903.1+904.0)	Cation/Anion Balance	Phenols SW-846 9067	pH	8011:EDB	Air Bubbles (Y or N)
12-29	10:15	liquid	WWTP Effluent to Wells	2 - 500ml P	1-unpres H2SO4	-001									X		X		Y
12-29	10:15	liquid	WWTP Effluent to Wells	3-40ml VOA	HCL		X												
12-29	10:15	liquid	WWTP Effluent to Wells	1-500ml P	HNO3						X								
12-29	10:15	liquid	WWTP Effluent to Wells	1-125ml P	HNO3				X										
12-29	10:15	liquid	WWTP Effluent to Wells	1-500ml P	NaOH					X									
12-29	10:15	liquid	WWTP Effluent to Wells	2- 1L P	HNO3									X					
12-29	10:15	liquid	WWTP Effluent to Wells	3-40ml VOA	Na2S2O3													X	
12-29	10:15	liquid	WWTP Effluent to Wells	2 - 1L Glass	unpres								X						
12-29	10:15	liquid	WWTP Effluent to Wells	1 - 1L Glass	unpres			X											
12-29	10:15	liquid	WWTP Effluent to Wells	3-40ml VOA	HCl							X							
12-29	10:15	liquid	WWTP Effluent to Wells	1-250mlGlass	unpres							X							
12-29	10:15	liquid	WWTP Effluent to Wells	1 - 1L Glass	H2SO4											X			
12-29	X-1 X	liquid	Trip Blank	2-40ml VOA	HCL	-002													

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-2-19	2:00	Brady Hubbard		1/2/19	1402
1/2/19	1900		Victoria Ballon	1/3/19	9:05

Remarks: email to Scott Denton, Robert Combs and Randy Dade

Metals: As, Al, Ba, B, Cd, Cr, Co, Cu, Fe, Pb, Mn, Hg, Mo, Ni, Se, Ag, U, Zn

VOCs: 1,1,1-Trichloroethane; 1,1,2,2-Tetrachloroethane; 1,1,2,2-Tetrachloroethylene; 1,1,2-Trichloroethane; 1,1,2-Trichloroethylene; 1,1-Dichloroethane; 1,1-Dichloroethene; 1,2-Dibromoethane; 1,2-Dichloroethane; Benzene; Carbon Tetrachloride; Chloroform; Dichloromethane; Ethylbenzene; Toluene; Total Xylenes; Vinyl Chloride

SVOCs: benzo(a)pyrene, phenol, 1-methylnaphthalene, 2-methylnaphthalene, naphthalene

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 17, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1059899
Samples Received:	01/08/2019
Project Number:	
Description:	Artesia Release

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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WPL-01 L1059899-01 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:17 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 18:10	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/11/19 18:24	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 15:53	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:17	01/11/19 16:14	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	5	01/11/19 11:48	01/12/19 02:51	DMW

WPL-02 L1059899-02 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:25 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 18:39	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/11/19 18:53	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 15:55	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:25	01/13/19 23:27	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	1	01/11/19 11:48	01/11/19 23:55	DMW

WPL-03 L1059899-03 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:35 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 19:08	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/12/19 10:08	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:03	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:35	01/13/19 23:49	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	1	01/11/19 11:48	01/12/19 00:08	DMW

WPL-04 L1059899-04 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:42 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 19:37	ELN
Wet Chemistry by Method 300.0	WG1221962	50	01/11/19 11:00	01/11/19 20:20	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:06	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:42	01/14/19 00:10	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	1	01/11/19 11:48	01/12/19 00:22	DMW

WPL-05 L1059899-05 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:36 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 20:34	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/11/19 21:03	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:09	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:36	01/14/19 00:31	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	1	01/11/19 11:48	01/12/19 00:35	DMW

WPL-06 L1059899-06 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:46 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 21:32	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/11/19 22:15	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 15:39	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:46	01/14/19 00:52	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	1	01/11/19 11:48	01/12/19 01:16	DMW

WPL-07 L1059899-07 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:52 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 22:30	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/11/19 23:13	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:12	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:52	01/14/19 01:43	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	1	01/11/19 11:48	01/12/19 00:49	DMW

WPL-08 L1059899-08 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 08:58 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 23:28	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/11/19 23:42	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:14	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 08:58	01/14/19 02:05	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	1	01/11/19 11:48	01/12/19 01:02	DMW

WPL-09 L1059899-09 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:04 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/11/19 23:56	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/12/19 10:22	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:17	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 09:04	01/14/19 02:26	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	50	01/11/19 11:48	01/12/19 02:37	DMW

WPL-10 L1059899-10 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:07 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222138	1	01/11/19 13:40	01/11/19 13:56	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 00:25	ELN
Wet Chemistry by Method 300.0	WG1221962	50	01/11/19 11:00	01/12/19 00:40	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:20	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 09:07	01/14/19 02:47	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	5	01/11/19 11:48	01/12/19 03:31	DMW

WPL-11 L1059899-11 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:12 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 00:54	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/12/19 01:09	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:23	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 09:12	01/14/19 03:09	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	10	01/11/19 11:48	01/12/19 03:45	DMW

WPL-12 L1059899-12 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:17 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 01:23	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/12/19 02:21	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:26	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 09:17	01/14/19 03:30	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	10	01/11/19 11:48	01/12/19 01:56	DMW

WPL-13 L1059899-13 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:23 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 02:50	ELN
Wet Chemistry by Method 300.0	WG1221962	10	01/11/19 11:00	01/12/19 03:04	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:29	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222316	25	01/04/19 09:23	01/14/19 03:51	ACG
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	10	01/11/19 11:48	01/12/19 02:10	DMW

WPL-14 L1059899-14 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:27 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 03:19	ELN
Wet Chemistry by Method 300.0	WG1221962	10	01/11/19 11:00	01/12/19 03:33	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:37	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 09:27	01/13/19 22:45	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	2	01/11/19 11:48	01/12/19 01:43	DMW

WPL-15 L1059899-15 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:46 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 03:48	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/12/19 04:02	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:40	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 09:46	01/13/19 23:09	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	5	01/11/19 11:48	01/13/19 12:30	KME

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

WPL-16 L1059899-16 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:34 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 04:16	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/12/19 08:33	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:43	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 09:34	01/13/19 23:33	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	10	01/11/19 11:48	01/12/19 03:58	DMW

WPL-17 L1059899-17 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:40 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 08:47	ELN
Wet Chemistry by Method 300.0	WG1221962	20	01/11/19 11:00	01/12/19 09:01	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:46	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 09:40	01/13/19 23:57	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	20	01/11/19 11:48	01/12/19 04:25	DMW

WPL-18 L1059899-18 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 09:57 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 09:16	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:49	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 09:57	01/14/19 00:22	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	50	01/11/19 16:38	01/12/19 04:12	DMW

WPL-19 L1059899-19 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 10:23 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 09:30	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:52	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 10:23	01/14/19 00:46	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222050	10	01/11/19 16:38	01/12/19 02:23	DMW

WPL-20 L1059899-20 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 10:30 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222139	1	01/11/19 13:24	01/11/19 13:37	KDW
Wet Chemistry by Method 300.0	WG1221962	1	01/11/19 11:00	01/12/19 09:45	ELN
Metals (ICP) by Method 6010B	WG1222284	1	01/11/19 16:45	01/12/19 16:55	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 10:30	01/14/19 01:10	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	20	01/11/19 20:43	01/12/19 04:14	DMW

WPL-21 L1059899-21 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 10:37 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 15:53	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:11	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 10:37	01/14/19 01:34	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	20	01/11/19 20:43	01/12/19 04:25	DMW

WPL-22 L1059899-22 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 10:42 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 16:45	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:41	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 10:42	01/14/19 01:59	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	20	01/11/19 20:43	01/12/19 04:37	DMW

WPL-23 L1059899-23 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 10:48 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 17:11	ELN
Wet Chemistry by Method 300.0	WG1222303	20	01/15/19 12:00	01/15/19 17:37	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:44	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 10:48	01/14/19 02:23	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	5	01/11/19 20:43	01/12/19 03:26	DMW

WPL-24 L1059899-24 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 10:50 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 18:02	ELN
Wet Chemistry by Method 300.0	WG1222303	50	01/15/19 12:00	01/15/19 18:28	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:48	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 10:50	01/14/19 02:47	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	1	01/11/19 20:43	01/12/19 01:51	DMW

WPL-25 L1059899-25 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 10:57 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 19:46	ELN
Wet Chemistry by Method 300.0	WG1222303	20	01/15/19 12:00	01/15/19 20:12	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:50	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 10:57	01/14/19 03:11	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	5	01/11/19 20:43	01/12/19 03:14	DMW

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

WPL-26 L1059899-26 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 11:05 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 20:38	ELN
Wet Chemistry by Method 300.0	WG1222303	20	01/15/19 12:00	01/15/19 21:04	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:53	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 11:05	01/14/19 03:35	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	20	01/11/19 20:43	01/12/19 04:49	DMW

BG-01 L1059899-27 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 11:38 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 21:30	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:56	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 11:38	01/14/19 04:00	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	5	01/11/19 20:43	01/12/19 03:38	DMW

BG-02 L1059899-28 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 11:18 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 21:56	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 17:59	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 11:18	01/14/19 04:24	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	5	01/11/19 20:43	01/12/19 03:50	DMW

BG-03 L1059899-29 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 11:32 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 22:22	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 18:02	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 11:32	01/14/19 04:48	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	5	01/11/19 20:43	01/12/19 04:02	DMW

BG-04 L1059899-30 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 11:24 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222140	1	01/11/19 10:29	01/11/19 10:41	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 22:48	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 18:11	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 11:24	01/14/19 05:12	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	20	01/11/19 20:43	01/12/19 05:01	DMW

BG-05 L1059899-31 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 11:48 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222141	1	01/11/19 09:41	01/11/19 10:05	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/15/19 23:14	ELN
Wet Chemistry by Method 300.0	WG1222303	50	01/15/19 12:00	01/15/19 23:40	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 18:14	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 11:48	01/14/19 05:36	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	1	01/11/19 20:43	01/12/19 02:03	DMW

DUP-01 L1059899-32 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 00:00 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222141	1	01/11/19 09:41	01/11/19 10:05	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/16/19 00:58	ELN
Wet Chemistry by Method 300.0	WG1222303	50	01/15/19 12:00	01/16/19 01:23	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 18:16	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 00:00	01/14/19 06:00	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	1	01/11/19 20:43	01/12/19 02:14	DMW

DUP-02 L1059899-33 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 00:00 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222141	1	01/11/19 09:41	01/11/19 10:05	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/16/19 01:49	ELN
Wet Chemistry by Method 300.0	WG1222303	10	01/15/19 12:00	01/16/19 02:15	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 18:19	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222990	25	01/04/19 00:00	01/14/19 06:24	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	1	01/11/19 20:43	01/12/19 02:26	DMW

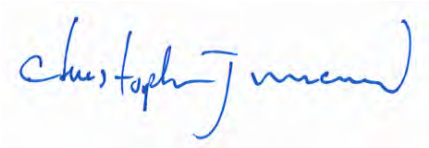
DUP-03 L1059899-34 Solid

Collected by: Fernando C. Aguirre | Collected date/time: 01/04/19 00:00 | Received date/time: 01/08/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1222141	1	01/11/19 09:41	01/11/19 10:05	KDW
Wet Chemistry by Method 300.0	WG1222303	1	01/15/19 12:00	01/16/19 02:41	ELN
Wet Chemistry by Method 300.0	WG1222303	5	01/15/19 12:00	01/16/19 08:23	ELN
Metals (ICP) by Method 6010B	WG1222286	1	01/11/19 16:54	01/12/19 18:22	WBD
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1222989	25	01/04/19 00:00	01/15/19 09:12	DWR
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1222573	1	01/11/19 20:43	01/12/19 02:38	DMW

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: ESC Lab Sciences	LRC Date: 01/17/2019 16:00
Project Name: Artesia Release	Laboratory Job Number: L1059899-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1222316, WG1222141, WG1222140, WG1222139, WG1222138, WG1221962, WG1222573, WG1222050, WG1222284, WG1222286, WG1222990, WG1222989 and WG1222303

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?		X			1
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?	X				
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			2
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			3
		Were MS/MSD RPDs within laboratory QC limits?		X			4
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?		X			5
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: ESC Lab Sciences	LRC Date: 01/17/2019 16:00
Project Name: Artesia Release	Laboratory Job Number: L1059899-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1222316, WG1222141, WG1222140, WG1222139, WG1222138, WG1221962, WG1222573, WG1222050, WG1222284, WG1222286, WG1222990, WG1222989 and WG1222303

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?	X				
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?	X				
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: ESC Lab Sciences	LRC Date: 01/17/2019 16:00
Project Name: Artesia Release	Laboratory Job Number: L1059899-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33 and 34
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1222316, WG1222141, WG1222140, WG1222139, WG1222138, WG1221962, WG1222573, WG1222050, WG1222284, WG1222286, WG1222990, WG1222989 and WG1222303

ER #[1]	Description
1	WG1221962 R3375343-5 and 6: The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
2	8015 WG1222050 o-Terphenyl L1059899-09, 17 and 18: Percent Recovery is outside of established control limits. 8015 WG1222573 o-Terphenyl L1059899-20, 21, 22, 26 and 30: Percent Recovery is outside of established control limits.
3	300.0 WG1221962 Sulfate: Percent Recovery is outside of established control limits. 300.0 WG1221962 Fluoride: Percent Recovery is outside of established control limits. 300.0 WG1222303 Fluoride, Sulfate: Percent Recovery is outside of established control limits. 8015 WG1222050 C10-C28 Diesel Range: Percent Recovery is outside of established control limits.
4	8015 WG1222050 C10-C28 Diesel Range: Relative Percent Difference is outside of established control limits. 8015D/GRO WG1222316 TPH (GC/FID) Low Fraction: Relative Percent Difference is outside of established control limits.
5	300.0 WG1221962 Chloride: Relative Percent Difference is outside of established control limits. 300.0 WG1222303 Sulfate: Relative Percent Difference is outside of established control limits.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.9		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	74.9		1.02	10.0	12.8	1	01/11/2019 18:10	WG1221962
Fluoride	8.31		0.335	1.00	1.28	1	01/11/2019 18:10	WG1221962
Sulfate	14900		14.6	50.0	1280	20	01/11/2019 18:24	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.84	B	0.590	2.00	2.57	1	01/12/2019 15:53	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.696	0.100	3.21	25	01/11/2019 16:14	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*108*				*77.0-120*		*01/11/2019 16:14*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	23.0	J J3 J6	10.3	4.00	25.7	5	01/12/2019 02:51	WG1222050
(S) o-Terphenyl	*75.3*				*18.0-148*		*01/12/2019 02:51*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	73.4		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	479		1.08	10.0	13.6	1	01/11/2019 18:39	WG1221962
Fluoride	12.4		0.355	1.00	1.36	1	01/11/2019 18:39	WG1221962
Sulfate	18000		15.5	50.0	1360	20	01/11/2019 18:53	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.76	B	0.626	2.00	2.72	1	01/12/2019 15:55	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.739	0.100	3.40	25	01/13/2019 23:27	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*109*				*77.0-120*		*01/13/2019 23:27*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	18.9		2.19	4.00	5.45	1	01/11/2019 23:55	WG1222050
(S) o-Terphenyl	*50.2*				*18.0-148*		*01/11/2019 23:55*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	73.0		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	180		1.09	10.0	13.7	1	01/11/2019 19:08	WG1221962
Fluoride	8.63		0.358	1.00	1.37	1	01/11/2019 19:08	WG1221962
Sulfate	14800		15.6	50.0	1370	20	01/12/2019 10:08	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.70	B	0.630	2.00	2.74	1	01/12/2019 16:03	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.744	0.100	3.43	25	01/13/2019 23:49	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*106*				*77.0-120*		*01/13/2019 23:49*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	8.92		2.21	4.00	5.48	1	01/12/2019 00:08	WG1222050
(S) o-Terphenyl	*33.9*				*18.0-148*		*01/12/2019 00:08*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	68.8		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	213		1.16	10.0	14.5	1	01/11/2019 19:37	WG1221962
Fluoride	15.5		0.380	1.00	1.45	1	01/11/2019 19:37	WG1221962
Sulfate	18500		41.4	50.0	3640	50	01/11/2019 20:20	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	5.92	B	0.669	2.00	2.91	1	01/12/2019 16:06	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.789	0.100	3.64	25	01/14/2019 00:10	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*109*				*77.0-120*		*01/14/2019 00:10*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	13.1		2.34	4.00	5.82	1	01/12/2019 00:22	WG1222050
(S) o-Terphenyl	*34.4*				*18.0-148*		*01/12/2019 00:22*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	73.1		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	245		1.09	10.0	13.7	1	01/11/2019 20:34	WG1221962
Fluoride	13.4		0.357	1.00	1.37	1	01/11/2019 20:34	WG1221962
Sulfate	17100		15.6	50.0	1370	20	01/11/2019 21:03	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	5.80	B	0.629	2.00	2.74	1	01/12/2019 16:09	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.742	0.100	3.42	25	01/14/2019 00:31	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*108*				*77.0-120*		*01/14/2019 00:31*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	23.7		2.20	4.00	5.47	1	01/12/2019 00:35	WG1222050
(S) o-Terphenyl	*41.0*				*18.0-148*		*01/12/2019 00:35*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	72.9		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	728		1.09	10.0	13.7	1	01/11/2019 21:32	WG1221962
Fluoride	11.6	J6	0.358	1.00	1.37	1	01/11/2019 21:32	WG1221962
Sulfate	19200		15.6	50.0	1370	20	01/11/2019 22:15	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	5.52	B	0.631	2.00	2.74	1	01/12/2019 15:39	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.744	0.100	3.43	25	01/14/2019 00:52	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*106*				*77.0-120*		*01/14/2019 00:52*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	33.6		2.21	4.00	5.49	1	01/12/2019 01:16	WG1222050
(S) o-Terphenyl	*52.8*				*18.0-148*		*01/12/2019 01:16*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	71.3		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	623		1.12	10.0	14.0	1	01/11/2019 22:30	WG1221962
Fluoride	21.1		0.366	1.00	1.40	1	01/11/2019 22:30	WG1221962
Sulfate	19800		16.0	50.0	1400	20	01/11/2019 23:13	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	7.79		0.645	2.00	2.81	1	01/12/2019 16:12	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.761	0.100	3.51	25	01/14/2019 01:43	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*110*				*77.0-120*		*01/14/2019 01:43*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	24.4		2.26	4.00	5.61	1	01/12/2019 00:49	WG1222050
(S) o-Terphenyl	*47.4*				*18.0-148*		*01/12/2019 00:49*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	65.1		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	458		1.22	10.0	15.4	1	01/11/2019 23:28	WG1221962
Fluoride	21.2		0.401	1.00	1.54	1	01/11/2019 23:28	WG1221962
Sulfate	21900		17.5	50.0	1540	20	01/11/2019 23:42	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	7.25		0.706	2.00	3.07	1	01/12/2019 16:14	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.833	0.100	3.84	25	01/14/2019 02:05	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*106*				*77.0-120*		*01/14/2019 02:05*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	141		2.47	4.00	6.14	1	01/12/2019 01:02	WG1222050
(S) o-Terphenyl	*29.7*				*18.0-148*		*01/12/2019 01:02*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.0		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	52.3		1.01	10.0	12.7	1	01/11/2019 23:56	WG1221962
Fluoride	16.4		0.331	1.00	1.27	1	01/11/2019 23:56	WG1221962
Sulfate	13200		14.4	50.0	1270	20	01/12/2019 10:22	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	9.52		0.583	2.00	2.53	1	01/12/2019 16:17	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.687	0.100	3.17	25	01/14/2019 02:26	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*110*				*77.0-120*		*01/14/2019 02:26*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	232	J	102	4.00	253	50	01/12/2019 02:37	WG1222050
(S) o-Terphenyl	*108*	J7			*18.0-148*		*01/12/2019 02:37*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.5		1	01/11/2019 13:56	WG1222138

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	108		0.988	10.0	12.4	1	01/12/2019 00:25	WG1221962
Fluoride	26.6		0.324	1.00	1.24	1	01/12/2019 00:25	WG1221962
Sulfate	17800		35.4	50.0	3110	50	01/12/2019 00:40	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	6.67		0.572	2.00	2.49	1	01/12/2019 16:20	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.674	0.100	3.11	25	01/14/2019 02:47	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*108*				*77.0-120*		*01/14/2019 02:47*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	32.2		10.0	4.00	24.9	5	01/12/2019 03:31	WG1222050
(S) o-Terphenyl	*63.8*				*18.0-148*		*01/12/2019 03:31*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.5		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	34.4		0.963	10.0	12.1	1	01/12/2019 00:54	WG1221962
Fluoride	14.7		0.316	1.00	1.21	1	01/12/2019 00:54	WG1221962
Sulfate	15900		13.8	50.0	1210	20	01/12/2019 01:09	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.87	B	0.557	2.00	2.42	1	01/12/2019 16:23	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.657	0.100	3.03	25	01/14/2019 03:09	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*112*				*77.0-120*		*01/14/2019 03:09*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	39.9	J	19.5	4.00	48.5	10	01/12/2019 03:45	WG1222050
(S) o-Terphenyl	*105*				*18.0-148*		*01/12/2019 03:45*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.9		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	168	J3	0.936	10.0	11.8	1	01/12/2019 01:23	WG1221962
Fluoride	13.3		0.307	1.00	1.18	1	01/12/2019 01:23	WG1221962
Sulfate	16700		13.4	50.0	1180	20	01/12/2019 02:21	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	5.02	B	0.542	2.00	2.35	1	01/12/2019 16:26	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.639	0.100	2.94	25	01/14/2019 03:30	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*110*				*77.0-120*		*01/14/2019 03:30*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	70.4		19.0	4.00	47.1	10	01/12/2019 01:56	WG1222050
(S) o-Terphenyl	*112*				*18.0-148*		*01/12/2019 01:56*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.5		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	114		0.869	10.0	10.9	1	01/12/2019 02:50	WG1221962
Fluoride	12.2		0.285	1.00	1.09	1	01/12/2019 02:50	WG1221962
Sulfate	5180		6.23	50.0	546	10	01/12/2019 03:04	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.07	B	0.503	2.00	2.19	1	01/12/2019 16:29	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.593	0.100	2.73	25	01/14/2019 03:51	WG1222316
(S) a,a,a-Trifluorotoluene(FID)	*108*				*77.0-120*		*01/14/2019 03:51*	WG1222316

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	19.9	J	17.6	4.00	43.7	10	01/12/2019 02:10	WG1222050
(S) o-Terphenyl	*94.5*				*18.0-148*		*01/12/2019 02:10*	WG1222050

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.0		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	174		1.02	10.0	12.8	1	01/12/2019 03:19	WG1221962
Fluoride	8.69		0.335	1.00	1.28	1	01/12/2019 03:19	WG1221962
Sulfate	3780		7.31	50.0	641	10	01/12/2019 03:33	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.41	B	0.590	2.00	2.56	1	01/12/2019 16:37	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.696	0.100	3.21	25	01/13/2019 22:45	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.0*				*77.0-120*		*01/13/2019 22:45*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	23.6		4.13	4.00	10.3	2	01/12/2019 01:43	WG1222050
(S) o-Terphenyl	*57.5*				*18.0-148*		*01/12/2019 01:43*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	56.3		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	457		1.41	10.0	17.8	1	01/12/2019 03:48	WG1221962
Fluoride	64.2		0.464	1.00	1.78	1	01/12/2019 03:48	WG1221962
Sulfate	25000		20.3	50.0	1780	20	01/12/2019 04:02	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	6.57	B	0.817	2.00	3.55	1	01/12/2019 16:40	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	2.13	J	0.964	0.100	4.44	25	01/13/2019 23:09	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.7*				*77.0-120*		*01/13/2019 23:09*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1080		14.3	4.00	35.5	5	01/13/2019 12:30	WG1222050
(S) o-Terphenyl	*45.9*				*18.0-148*		*01/13/2019 12:30*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	75.9		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	145		1.05	10.0	13.2	1	01/12/2019 04:16	WG1221962
Fluoride	10.2		0.344	1.00	1.32	1	01/12/2019 04:16	WG1221962
Sulfate	8480		15.0	50.0	1320	20	01/12/2019 08:33	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.84	B	0.606	2.00	2.64	1	01/12/2019 16:43	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.715	0.100	3.29	25	01/13/2019 23:33	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.4*				*77.0-120*		*01/13/2019 23:33*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		21.2	4.00	52.7	10	01/12/2019 03:58	WG1222050
(S) o-Terphenyl	*65.6*				*18.0-148*		*01/12/2019 03:58*	WG1222050

Sample Narrative:

L1059899-16 WG1222050: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.6		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	114		1.03	10.0	12.9	1	01/12/2019 08:47	WG1221962
Fluoride	7.73		0.336	1.00	1.29	1	01/12/2019 08:47	WG1221962
Sulfate	6710		14.7	50.0	1290	20	01/12/2019 09:01	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.12	B	0.593	2.00	2.58	1	01/12/2019 16:46	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.699	0.100	3.22	25	01/13/2019 23:57	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.2*				*77.0-120*		*01/13/2019 23:57*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		41.5	4.00	103	20	01/12/2019 04:25	WG1222050
(S) o-Terphenyl	*77.5*	J7			*18.0-148*		*01/12/2019 04:25*	WG1222050

Sample Narrative:

L1059899-17 WG1222050: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	92.9		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	23.0		0.856	10.0	10.8	1	01/12/2019 09:16	WG1221962
Fluoride	2.64		0.281	1.00	1.08	1	01/12/2019 09:16	WG1221962
Sulfate	870		0.614	50.0	53.8	1	01/12/2019 09:16	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.66	B	0.495	2.00	2.15	1	01/12/2019 16:49	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.584	0.100	2.69	25	01/14/2019 00:22	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.9*				*77.0-120*		*01/14/2019 00:22*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	914		86.7	4.00	215	50	01/12/2019 04:12	WG1222050
(S) o-Terphenyl	*81.7*	J7			*18.0-148*		*01/12/2019 04:12*	WG1222050

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.3		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	83.6		0.943	10.0	11.9	1	01/12/2019 09:30	WG1221962
Fluoride	10.4		0.310	1.00	1.19	1	01/12/2019 09:30	WG1221962
Sulfate	418		0.676	50.0	59.3	1	01/12/2019 09:30	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.38	B	0.546	2.00	2.37	1	01/12/2019 16:52	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.643	0.100	2.97	25	01/14/2019 00:46	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.9*				*77.0-120*		*01/14/2019 00:46*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	74.8		19.1	4.00	47.4	10	01/12/2019 02:23	WG1222050
(S) o-Terphenyl	*104*				*18.0-148*		*01/12/2019 02:23*	WG1222050

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	83.8		1	01/11/2019 13:37	WG1222139

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	95.8		0.949	10.0	11.9	1	01/12/2019 09:45	WG1221962
Fluoride	12.4		0.311	1.00	1.19	1	01/12/2019 09:45	WG1221962
Sulfate	432		0.680	50.0	59.6	1	01/12/2019 09:45	WG1221962

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.95	B	0.549	2.00	2.39	1	01/12/2019 16:55	WG1222284

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.647	0.100	2.98	25	01/14/2019 01:10	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.3*				*77.0-120*		*01/14/2019 01:10*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		38.4	4.00	95.4	20	01/12/2019 04:14	WG1222573
(S) o-Terphenyl	*75.5*	J7			*18.0-148*		*01/12/2019 04:14*	WG1222573

Sample Narrative:

L1059899-20 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.8		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	199		0.996	10.0	12.5	1	01/15/2019 15:53	WG1222303
Fluoride	12.2		0.327	1.00	1.25	1	01/15/2019 15:53	WG1222303
Sulfate	655		0.714	50.0	62.6	1	01/15/2019 15:53	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.08		0.576	2.00	2.51	1	01/12/2019 17:11	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.680	0.100	3.13	25	01/14/2019 01:34	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.4*				*77.0-120*		*01/14/2019 01:34*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		40.3	4.00	100	20	01/12/2019 04:25	WG1222573
(S) o-Terphenyl	*73.5*	J7			*18.0-148*		*01/12/2019 04:25*	WG1222573

Sample Narrative:

L1059899-21 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.2		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	150		0.979	10.0	12.3	1	01/15/2019 16:45	WG1222303
Fluoride	12.2		0.321	1.00	1.23	1	01/15/2019 16:45	WG1222303
Sulfate	508		0.702	50.0	61.6	1	01/15/2019 16:45	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.02		0.566	2.00	2.46	1	01/12/2019 17:41	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.668	0.100	3.08	25	01/14/2019 01:59	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.9*				*77.0-120*		*01/14/2019 01:59*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		39.7	4.00	98.5	20	01/12/2019 04:37	WG1222573
(S) o-Terphenyl	*78.5*	J7			*18.0-148*		*01/12/2019 04:37*	WG1222573

Sample Narrative:

L1059899-22 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.8		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	67.6		0.996	10.0	12.5	1	01/15/2019 17:11	WG1222303
Fluoride	5.75		0.327	1.00	1.25	1	01/15/2019 17:11	WG1222303
Sulfate	14500		14.3	50.0	1250	20	01/15/2019 17:37	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.23		0.576	2.00	2.51	1	01/12/2019 17:44	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.680	0.100	3.13	25	01/14/2019 02:23	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*95.0*				*77.0-120*		*01/14/2019 02:23*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	12.2	J	10.1	4.00	25.1	5	01/12/2019 03:26	WG1222573
(S) o-Terphenyl	*70.5*				*18.0-148*		*01/12/2019 03:26*	WG1222573

Sample Narrative:

L1059899-23 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.4		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	67.8		1.01	10.0	12.8	1	01/15/2019 18:02	WG1222303
Fluoride	7.07		0.333	1.00	1.28	1	01/15/2019 18:02	WG1222303
Sulfate	17100		36.4	50.0	3190	50	01/15/2019 18:28	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	6.22		0.587	2.00	2.55	1	01/12/2019 17:48	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.692	0.100	3.19	25	01/14/2019 02:47	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.9*				*77.0-120*		*01/14/2019 02:47*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	14.3		2.05	4.00	5.10	1	01/12/2019 01:51	WG1222573
(S) o-Terphenyl	*70.1*				*18.0-148*		*01/12/2019 01:51*	WG1222573

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.9		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	67.4		0.996	10.0	12.5	1	01/15/2019 19:46	WG1222303
Fluoride	5.90		0.327	1.00	1.25	1	01/15/2019 19:46	WG1222303
Sulfate	7700		14.3	50.0	1250	20	01/15/2019 20:12	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.67		0.576	2.00	2.50	1	01/12/2019 17:50	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.679	0.100	3.13	25	01/14/2019 03:11	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.6*				*77.0-120*		*01/14/2019 03:11*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	13.3	J	10.1	4.00	25.0	5	01/12/2019 03:14	WG1222573
(S) o-Terphenyl	*73.6*				*18.0-148*		*01/12/2019 03:14*	WG1222573

Sample Narrative:

L1059899-25 WG1222573: Cannot run at lower dilution due to viscosity of extract

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.1		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	67.5		1.03	10.0	13.0	1	01/15/2019 20:38	WG1222303
Fluoride	8.37		0.338	1.00	1.30	1	01/15/2019 20:38	WG1222303
Sulfate	18500		14.8	50.0	1300	20	01/15/2019 21:04	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.37	J	0.596	2.00	2.59	1	01/12/2019 17:53	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.703	0.100	3.24	25	01/14/2019 03:35	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.3*				*77.0-120*		*01/14/2019 03:35*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		41.8	4.00	104	20	01/12/2019 04:49	WG1222573
(S) o-Terphenyl	*92.3*	J7			*18.0-148*		*01/12/2019 04:49*	WG1222573

Sample Narrative:

L1059899-26 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.6		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	108		1.01	10.0	12.7	1	01/15/2019 21:30	WG1222303
Fluoride	8.97		0.332	1.00	1.27	1	01/15/2019 21:30	WG1222303
Sulfate	91.3		0.725	50.0	63.6	1	01/15/2019 21:30	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.70		0.585	2.00	2.54	1	01/12/2019 17:56	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.690	0.100	3.18	25	01/14/2019 04:00	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*95.1*				*77.0-120*		*01/14/2019 04:00*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	18.1	J	10.2	4.00	25.4	5	01/12/2019 03:38	WG1222573
(S) o-Terphenyl	*69.5*				*18.0-148*		*01/12/2019 03:38*	WG1222573

Sample Narrative:

L1059899-27 WG1222573: Cannot run at lower dilution due to viscosity of extract

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.8		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	64.9		0.973	10.0	12.2	1	01/15/2019 21:56	WG1222303
Fluoride	9.86		0.319	1.00	1.22	1	01/15/2019 21:56	WG1222303
Sulfate	114		0.697	50.0	61.2	1	01/15/2019 21:56	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.06		0.563	2.00	2.45	1	01/12/2019 17:59	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.664	0.100	3.06	25	01/14/2019 04:24	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.6*				*77.0-120*		*01/14/2019 04:24*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	17.9	J	9.85	4.00	24.5	5	01/12/2019 03:50	WG1222573
(S) o-Terphenyl	*78.3*				*18.0-148*		*01/12/2019 03:50*	WG1222573

Sample Narrative:

L1059899-28 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.1		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	65.4		1.00	10.0	12.6	1	01/15/2019 22:22	WG1222303
Fluoride	15.9		0.330	1.00	1.26	1	01/15/2019 22:22	WG1222303
Sulfate	104		0.720	50.0	63.2	1	01/15/2019 22:22	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	2.50	J	0.581	2.00	2.53	1	01/12/2019 18:02	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.686	0.100	3.16	25	01/14/2019 04:48	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.3*				*77.0-120*		*01/14/2019 04:48*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		10.2	4.00	25.3	5	01/12/2019 04:02	WG1222573
(S) o-Terphenyl	*73.1*				*18.0-148*		*01/12/2019 04:02*	WG1222573

Sample Narrative:

L1059899-29 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	77.5		1	01/11/2019 10:41	WG1222140

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	66.6		1.03	10.0	12.9	1	01/15/2019 22:48	WG1222303
Fluoride	10.5		0.337	1.00	1.29	1	01/15/2019 22:48	WG1222303
Sulfate	213		0.736	50.0	64.6	1	01/15/2019 22:48	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	3.93		0.594	2.00	2.58	1	01/12/2019 18:11	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.700	0.100	3.23	25	01/14/2019 05:12	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.4*				*77.0-120*		*01/14/2019 05:12*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		41.6	4.00	103	20	01/12/2019 05:01	WG1222573
(S) o-Terphenyl	*81.8*	J7			*18.0-148*		*01/12/2019 05:01*	WG1222573

Sample Narrative:

L1059899-30 WG1222573: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	86.3		1	01/11/2019 10:05	WG1222141

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	193		0.921	10.0	11.6	1	01/15/2019 23:14	WG1222303
Fluoride	21.2		0.302	1.00	1.16	1	01/15/2019 23:14	WG1222303
Sulfate	16400		33.0	50.0	2900	50	01/15/2019 23:40	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	6.00		0.533	2.00	2.32	1	01/12/2019 18:14	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.629	0.100	2.90	25	01/14/2019 05:36	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.3*				*77.0-120*		*01/14/2019 05:36*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	14.5		1.87	4.00	4.63	1	01/12/2019 02:03	WG1222573
(S) o-Terphenyl	*85.9*				*18.0-148*		*01/12/2019 02:03*	WG1222573

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	70.1		1	01/11/2019 10:05	WG1222141

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	447		1.13	10.0	14.3	1	01/16/2019 00:58	WG1222303
Fluoride	22.7		0.372	1.00	1.43	1	01/16/2019 00:58	WG1222303
Sulfate	18300		40.7	50.0	3570	50	01/16/2019 01:23	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	5.87		0.656	2.00	2.85	1	01/12/2019 18:16	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.774	0.100	3.57	25	01/14/2019 06:00	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.6*				*77.0-120*		*01/14/2019 06:00*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	79.9		2.30	4.00	5.71	1	01/12/2019 02:14	WG1222573
(S) o-Terphenyl	*42.5*				*18.0-148*		*01/12/2019 02:14*	WG1222573

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.7		1	01/11/2019 10:05	WG1222141

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	207		0.997	10.0	12.5	1	01/16/2019 01:49	WG1222303
Fluoride	9.64		0.327	1.00	1.25	1	01/16/2019 01:49	WG1222303
Sulfate	7190		7.15	50.0	627	10	01/16/2019 02:15	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	4.51		0.577	2.00	2.51	1	01/12/2019 18:19	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.680	0.100	3.13	25	01/14/2019 06:24	WG1222990
(S) a,a,a-Trifluorotoluene(FID)	*94.7*				*77.0-120*		*01/14/2019 06:24*	WG1222990

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	8.98		2.02	4.00	5.02	1	01/12/2019 02:26	WG1222573
(S) o-Terphenyl	*68.8*				*18.0-148*		*01/12/2019 02:26*	WG1222573

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.6		1	01/11/2019 10:05	WG1222141

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	73.5		0.986	10.0	12.4	1	01/16/2019 02:41	WG1222303
Fluoride	7.89		0.324	1.00	1.24	1	01/16/2019 02:41	WG1222303
Sulfate	2560	J3	3.54	50.0	310	5	01/16/2019 08:23	WG1222303

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Arsenic	5.58		0.571	2.00	2.48	1	01/12/2019 18:22	WG1222286

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.673	0.100	3.10	25	01/15/2019 09:12	WG1222989
(S) a,a,a-Trifluorotoluene(FID)	*108*				*77.0-120*		*01/15/2019 09:12*	WG1222989

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	7.83		2.00	4.00	4.96	1	01/12/2019 02:38	WG1222573
(S) o-Terphenyl	*67.3*				*18.0-148*		*01/12/2019 02:38*	WG1222573

Method Blank (MB)

(MB) R3375323-1 01/11/19 13:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.000			

L1059899-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-01 01/11/19 13:56 • (DUP) R3375323-3 01/11/19 13:56

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	77.9	78.1	1	0.183		10

Laboratory Control Sample (LCS)

(LCS) R3375323-2 01/11/19 13:56

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3375320-1 01/11/19 13:37

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1059899-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-12 01/11/19 13:37 • (DUP) R3375320-3 01/11/19 13:37

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.9	86.2	1	1.50		10

Laboratory Control Sample (LCS)

(LCS) R3375320-2 01/11/19 13:37

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3375316-1 01/11/19 10:41

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1059899-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-23 01/11/19 10:41 • (DUP) R3375316-3 01/11/19 10:41

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	79.8	79.6	1	0.305		10

Laboratory Control Sample (LCS)

(LCS) R3375316-2 01/11/19 10:41

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3375315-1 01/11/19 10:05

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1059923-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1059923-01 01/11/19 10:05 • (DUP) R3375315-3 01/11/19 10:05

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	85.7	85.7	1	0.00420		10

Laboratory Control Sample (LCS)

(LCS) R3375315-2 01/11/19 10:05

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3375343-1 01/11/19 17:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	1.91	J	0.795	10.0
Fluoride	U		0.261	1.00
Sulfate	3.15	J	0.570	50.0

L1059899-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-05 01/11/19 20:34 • (DUP) R3375343-3 01/11/19 20:49

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	245	230	1	6.06		20
Fluoride	13.4	12.3	1	8.31		20

L1059899-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-05 01/11/19 21:03 • (DUP) R3375343-4 01/11/19 21:18

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	17100	17200	20	0.970		20

L1059899-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-12 01/12/19 01:23 • (DUP) R3375343-7 01/12/19 02:06

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	168	212	1	23.4	J3	20
Fluoride	13.3	14.5	1	8.63		20

L1059899-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-12 01/12/19 02:21 • (DUP) R3375343-9 01/12/19 10:36

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	16700	17300	20	3.79		20

Laboratory Control Sample (LCS)

(LCS) R3375343-2 01/11/19 17:41

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	206	103	90.0-110	
Fluoride	20.0	20.1	101	90.0-110	
Sulfate	200	206	103	90.0-110	

L1059899-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059899-06 01/11/19 21:32 • (MS) R3375343-5 01/11/19 21:47 • (MSD) R3375343-6 01/11/19 22:01

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	686	728	1440	1350	103	90.2	1	80.0-120	E		6.53	20
Fluoride	68.6	11.6	47.5	48.7	52.3	54.0	1	80.0-120	J6	J6	2.51	20
Sulfate	686	18100	19100	18700	146	82.0	1	80.0-120	E V	E	2.32	20

Method Blank (MB)

(MB) R3376136-1 01/15/19 14:12

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	2.24	J	0.795	10.0
Fluoride	U		0.261	1.00
Sulfate	3.19	J	0.570	50.0

L1059899-21 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-21 01/15/19 15:53 • (DUP) R3376136-3 01/15/19 16:19

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	199	187	1	6.11		20
Fluoride	12.2	12.5	1	2.20		20
Sulfate	655	622	1	5.17		20

L1059899-34 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-34 01/16/19 02:41 • (DUP) R3376136-4 01/16/19 03:07

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	73.5	67.6	1	8.28		20
Fluoride	7.89	6.66	1	17.0		20

L1059899-34 Original Sample (OS) • Duplicate (DUP)

(OS) L1059899-34 01/16/19 08:23 • (DUP) R3376136-7 01/16/19 08:48

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfate	2560	3850	5	40.2	J3	20

Laboratory Control Sample (LCS)

(LCS) R3376136-2 01/15/19 14:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	200	99.9	90.0-110	
Fluoride	20.0	19.9	99.3	90.0-110	
Sulfate	200	197	98.6	90.0-110	

L1059523-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059523-01 01/16/19 03:33 • (MS) R3376136-5 01/16/19 03:59 • (MSD) R3376136-6 01/16/19 04:25

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	6300	1340	7830	7850	103	103	1	80.0-120			0.288	20
Fluoride	630	23.5	51.1	47.5	4.37	3.81	1	80.0-120	J6	J6	7.15	20
Sulfate	6300	ND	4220	4170	64.2	63.4	1	80.0-120	J6	J6	1.20	20

Method Blank (MB)

(MB) R3375404-1 01/12/19 15:31

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	0.471	J	0.460	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3375404-2 01/12/19 15:34 • (LCSD) R3375404-3 01/12/19 15:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	98.4	93.1	98.4	93.1	80.0-120			5.50	20

L1059899-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059899-06 01/12/19 15:39 • (MS) R3375404-6 01/12/19 15:47 • (MSD) R3375404-7 01/12/19 15:50

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	137	5.52	146	136	102	94.9	1	75.0-125			7.12	20

Method Blank (MB)

(MB) R3375405-1 01/12/19 17:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Arsenic	U		0.460	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3375405-2 01/12/19 17:06 • (LCSD) R3375405-3 01/12/19 17:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Arsenic	100	94.2	95.0	94.2	95.0	80.0-120			0.796	20

L1059899-21 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059899-21 01/12/19 17:11 • (MS) R3375405-6 01/12/19 17:19 • (MSD) R3375405-7 01/12/19 17:22

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	125	3.08	130	134	101	104	1	75.0-125			2.82	20

Method Blank (MB)

(MB) R3375211-5 01/11/19 12:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*103*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3375211-3 01/11/19 11:13 • (LCSD) R3375211-4 01/11/19 11:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	6.01	4.99	109	90.7	72.0-127			18.7	20
(S) a,a,a-Trifluorotoluene(FID)				*101*	*100*	*77.0-120*				

L1059806-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059806-01 01/11/19 15:53 • (MS) R3375211-8 01/14/19 04:57 • (MSD) R3375211-9 01/14/19 05:18

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	ND	2.81	1.51	50.0	26.4	1	10.0-151		J3	60.2	28
(S) a,a,a-Trifluorotoluene(FID)					*94.5*	*98.1*		*77.0-120*				

Method Blank (MB)

(MB) R3375840-5 01/14/19 22:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*104*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3375840-3 01/14/19 20:56 • (LCSD) R3375840-4 01/14/19 21:17

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	6.26	6.17	114	112	72.0-127			1.47	20
(S) a,a,a-Trifluorotoluene(FID)				*100*	*99.7*	*77.0-120*				

L1060029-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1060029-02 01/15/19 09:55 • (MS) R3375840-8 01/15/19 11:20 • (MSD) R3375840-9 01/15/19 11:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	114	330	315	39.3	36.6	100	10.0-151			4.50	28
(S) a,a,a-Trifluorotoluene(FID)					*102*	*102*		*77.0-120*				

Sample Narrative:

OS: Target and Non-target compounds too high to run at a lower dilution.

Method Blank (MB)

(MB) R3375653-3 01/13/19 21:22

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*93.8*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3375653-1 01/13/19 20:10 • (LCSD) R3375653-2 01/13/19 20:34

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	5.39	5.62	98.1	102	72.0-127			4.15	20
(S) a,a,a-Trifluorotoluene(FID)				*106*	*107*	*77.0-120*				

L1059899-33 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059899-33 01/14/19 06:24 • (MS) R3375653-4 01/14/19 06:48 • (MSD) R3375653-5 01/14/19 07:13

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	6.90	U	25.3	25.3	14.7	14.7	25	10.0-151			0.00253	28
(S) a,a,a-Trifluorotoluene(FID)					*96.9*	*96.9*		*77.0-120*				

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

Method Blank (MB)

(MB) R3375386-1 01/11/19 23:14

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
C10-C28 Diesel Range	U		1.61	4.00
(S) o-Terphenyl	*76.7*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3375386-2 01/11/19 23:28 • (LCSD) R3375386-3 01/11/19 23:41

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
C10-C28 Diesel Range	50.0	44.2	38.2	88.4	76.4	50.0-150			14.6	20
(S) o-Terphenyl				*103*	*83.2*	*18.0-148*				

L1059899-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1059899-01 01/12/19 02:51 • (MS) R3375386-4 01/12/19 03:04 • (MSD) R3375386-5 01/12/19 03:18

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
C10-C28 Diesel Range	64.2	23.0	66.9	53.4	68.4	47.4	5	50.0-150		J3 J6	22.4	20
(S) o-Terphenyl					*65.8*	*59.0*		*18.0-148*				

Method Blank (MB)

(MB) R3375374-1 01/12/19 01:15

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
(S) o-Terphenyl	*66.1*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3375374-2 01/12/19 01:27 • (LCSD) R3375374-3 01/12/19 01:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Extractable Petroleum Hydrocarbon	50.0	29.6	25.6	59.2	51.2	50.0-150			14.5	20
C10-C28 Diesel Range	50.0	31.6	27.3	63.2	54.6	50.0-150			14.6	20
(S) o-Terphenyl				*95.5*	*82.6*	*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MQL (dry)	Method Quantitation Limit.
MQL	Method Quantitation Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
SDL (dry)	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

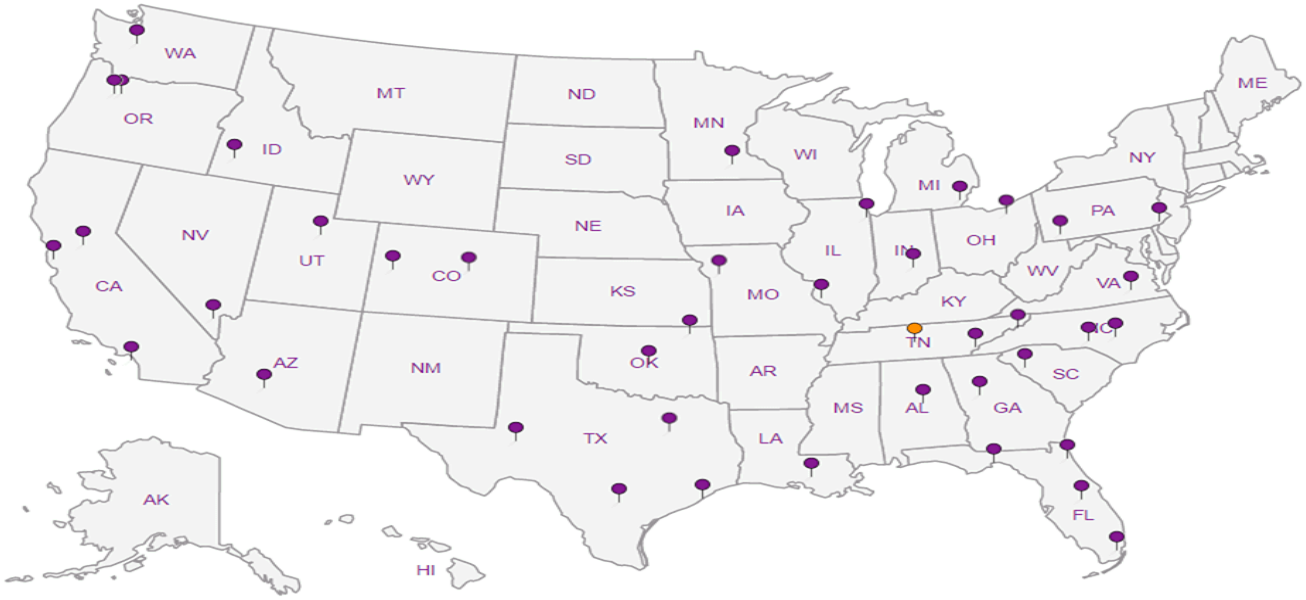
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Artesia Release

City/State Collected:

Phone: 512-684-3170
Fax:

Client Project #

Lab Project # TRCATX-ARTESIA

Collected by (print): Fernando C. Aguirre

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions, DRO/MRO 4ozClr-NoPres	MRCRA8 4ozClr-NoPres	V8260, GRO 40mlAmb/MeOH5ml/Syr	Remarks	Sample # (lab only)
WPL-01	GRAB	SS	Surface	01.04.19	0817	2	X	X	X		-01
WPL-02		SS		01.04.19	0825	2	X	X	X		02
WPL-03		SS		01.04.19	0835	2	X	X	X		03
WPL-04		SS		01.04.19	0842	2	X	X	X		04
WPL-05		SS		01.04.19	0836	2	X	X	X		05
WPL-06		SS		01.04.19	0846	2	X	X	X		06
WPL-07		SS		01.04.19	0852	2	X	X	X		07
WPL-08		SS		01.04.19	0858	2	X	X	X		08
WPL-09		SS		01.04.19	0904	2	X	X	X		09
WPL-10		SS		01.04.19	0907	2	X	X	X		10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold, Analysis pending further instruction ALL

pH _____ Temp _____

RAD SCREEN <0.5 mR/hr Flow _____ Other _____

Samples returned via: __ UPS __ FedEx ✓ Courier __ _____

Tracking # 449034292811, 2800

Chain of Custody Page ___ of ___

Pace Analytical
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1059849

1213

Acctnum: TRCATX
Template: T144521
Prelogin: P687777
TSR: 526 - Chris McCord
PB:
Shipped Via:

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	01-07-19	1500	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / (NO) HCL / MeoH TBR

Temp: 2.8+0 °C Bottles Received: 6873

Date: 1/8/19 Time: 0830

If preservation required by Login: Date/Time

Condition: NCF / OK

01-0032
01-0031
01-0030

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Artesia Release

City/State Collected:

Phone: 512-684-3170
Fax:

Client Project #

Lab Project # TRCATX-ARTESIA

Collected by (print): Fernando C Aguiere

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions, DRO/MRO 4ozClr-NoPres	MRCRA8 4ozClr-NoPres	V8260, GRO 40mlAmb/MeOH5ml/Syr	Remarks	Sample # (lab only)
WPL-11	GRAB	SS	Surface	01.04.19	0912	2	X	X	X		11
WPL-12		SS		01.04.19	0917	2	X	X	X		12
WPL-13		SS		01.04.19	0923	2	X	X	X		13
WPL-14		SS		01.04.19	0927	2	X	X	X		14
WPL-15		SS		01.04.19	0946	2	X	X	X		15
WPL-16		SS		01.04.19	0934	2	X	X	X		16
WPL-17		SS		01.04.19	0940	2	X	X	X		17
WPL-18		SS		01.04.19	0957	2	X	X	X		18
WPL-19		SS		01.04.19	1023	2	X	X	X		19
WPL-20	✓	SS	✓	01.04.19	1030	2	X	X	X		20

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold ALL Analysis pending further instruction
pH _____ Temp _____
RAD SCREEN <0.5 mR/hr Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx ✓ Courier __ _____

Tracking #

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1059899

Table #

Acctnum: TRCATX
Template: T144521
Prelogin: P687777
TSR: 526 - Chris McCord
PB:

Shipped Via:

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
[signature]	01-07-19	1500			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 25+0 °C Bottles Received: 6	
				XD AI 6873	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1/8/19 Time: 0830	Hold: Condition: NCF / OK
			[signature]		

TRC Solutions - Austin, TX

505 E Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Artesia Release

City/State Collected:

Phone: 512-684-3170
Fax:

Client Project #

Lab Project #
TRCATX-ARTESIA

Collected by (print): Fernando C. Asviere

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions, DRO/MRO 4ozClr-NoPres	MRCRA8 4ozClr-NoPres	V8260, GRO 40mlAmb/MeOH5ml/Syr	Remarks	Sample # (lab only)
WPL-21	GRAB	SS	Surface	01.04.19	1037	2	X	X	X		21
WPL-22		SS		01.04.19	1042	2	X	X	X		22
WPL-23		SS		01.04.19	1048	2	X	X	X		23
WPL-24		SS		01.04.19	1050	2	X	X	X		24
WPL-25		SS		01.04.19	1057	2	X	X	X		25
WPL-26		SS		01.04.19	1105	2	X	X	X		26
BG-01		SS		01.04.19	1138	2	X	X	X		27
BG-02		SS		01.04.19	1118	2	X	X	X		28
BG-03		SS		01.04.19	1132	2	X	X	X		29
BG-04		SS		01.04.19	1124	2	X	X	X		30

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold All Analysis pending further instruction
RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
___ UPS ___ FedEx ___ Courier ___ _____

Tracking #

Relinquished by: (Signature) — Date: 01.07.19 — Time: 1500 — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received by: (Signature)

Relinquished by: (Signature) — Date: — Time: — Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 2.8+0 °C — Bottles Received: 4 6873

Date: 1/8/19 — Time: 0830

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: ___NP ✓Y ___N
COC Signed/Accurate: ___Y ___N
Bottles arrive intact: ___Y ___N
Correct bottles used: ___Y ___N
Sufficient volume sent: ___Y ___N
If Applicable
VOA Zero Headspace: ___Y ___N
Preservation Correct/Checked: ___Y ___N

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1054899

Table #

Acctnum: TRCATX
Template: T144521
Prelogin: P687777
TSR: 526 - Chris McCord
PB:
Shipped Via:

TRC Solutions - Austin, TX

505 E. Huntland Dr, Ste 250
Austin, TX 78752

Billing Information:
Accounts Payable
21 Griffin Road North
Windsor, CT 06095

Pres Chk

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Artesia Release

City/State Collected:

Phone: 512-684-3170
Fax:

Client Project #

Lab Project # TRCATX-ARTESIA

Collected by (print): Fernando C. Aguirre

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Anions, DRO/MRO 4ozClr-NoPres	MRCRA8 4ozClr-NoPres	V8260, GRO 40mlAmb/MeOH5ml/Syr	Remarks	Sample # (lab only)
BG-05	GRAB	SS	SURFACE	01.04.19	1148	2	X	X	X		31
DUP-01		SS		01.04.19	-	2	X	X	X		32
DUP-02		SS		01.04.19	-	2	X	X	X		33
DUP-03	↓	SS	↓	01.04.19	-	2	X	X	X		34

Chain of Custody Page ___ of ___

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L# L1059899

Table #

Acctnum: TRCATX
Template: T144521
Prelogin: P687777
TSR: 526 - Chris McCord
PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold ALL Analysis pending further instruction

pH _____ Temp _____

Flow _____ Other _____

IN D SCREEN: <0.5 mR/hr

Samples returned via: __ UPS __ FedEx ✓ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	If preservation required by Login: Date/Time
	01.07.19	1500			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.8+0 °C Bottles Received: 73	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1/8/19 Time: 0830	Hold: Condition: NCF / (OK)

Andy Vann

From: Jason Romer
Sent: Thursday, January 10, 2019 2:44 PM
To: Jeremy W. Watkins
Cc: Login; Chris McCord
Subject: RE: TRCATX
Attachments: Scan1.pdf

Per client:

For samples WPL-01 through WPL-26, BG-01 through BG-05, and Dup-01 through Dup-03, please proceed with analysis for DRO, GRO, arsenic, chloride, fluoride, and sulfate.

Also, please analyze samples WWPLBG-01 through WWPLBG-05 as a separate SDG, and these samples are to be analyzed for chloride only.

Thanks,

Jason Romer
Project Manager
Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.9713
jromer@pacenational.com | pacenational.com

From: Jeremy W. Watkins
Sent: Tuesday, January 08, 2019 4:34 PM
To: Jason Romer
Subject: TRCATX

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Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 20, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1079660
Samples Received:	03/16/2019
Project Number:	322192.2019.0000
Description:	Navajo Artesia Dec 2018 Wastewater Release

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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WPL-06-2 L1079660-01 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:00 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251476	1	03/18/19 13:43	03/18/19 13:57	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 00:01	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 16:51	LEA	Mt. Juliet, TN

WPL-06-N L1079660-02 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:02 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 00:17	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 21:07	LEA	Mt. Juliet, TN

WPL-06-S L1079660-03 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:04 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 01:05	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 20:08	LEA	Mt. Juliet, TN

WPL-06-W L1079660-04 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:06 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 01:21	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 20:27	LEA	Mt. Juliet, TN

WPL-07-2 L1079660-05 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:15 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 02:08	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	2	03/19/19 07:04	03/19/19 18:10	LEA	Mt. Juliet, TN

WPL-07-E L1079660-06 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:17 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 02:24	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	1	03/19/19 07:04	03/19/19 16:11	LEA	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

WPL-07-W L1079660-07 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:19 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 02:40	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	1	03/19/19 07:04	03/19/19 16:31	LEA	Mt. Juliet, TN

WPL-08-2 L1079660-08 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:05 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 09:05	03/19/19 14:31	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	20	03/17/19 16:45	03/18/19 08:09	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	2	03/19/19 07:04	03/19/19 18:30	LEA	Mt. Juliet, TN

WPL-08-E L1079660-09 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:52 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1.06	03/14/19 09:52	03/19/19 14:53	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	20	03/17/19 16:45	03/18/19 14:05	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	2	03/19/19 07:04	03/19/19 18:49	LEA	Mt. Juliet, TN

WPL-09-2 L1079660-10 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:40 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1.2	03/14/19 09:40	03/19/19 15:13	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	100	03/17/19 16:45	03/18/19 08:36	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	50	03/19/19 07:04	03/19/19 19:29	LEA	Mt. Juliet, TN

WPL-09-N L1079660-11 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:42 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251477	1	03/18/19 11:41	03/18/19 11:54	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 09:42	03/19/19 15:33	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	10	03/17/19 16:45	03/18/19 06:34	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	2	03/19/19 07:04	03/19/19 19:09	LEA	Mt. Juliet, TN

WPL-09-W L1079660-12 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:44 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 09:44	03/19/19 15:54	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	10	03/17/19 16:45	03/18/19 06:21	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 21:25	LEA	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

WPL-18-2 L1079660-13 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:30 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 10:30	03/19/19 16:14	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	1	03/17/19 16:45	03/18/19 04:45	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	1	03/19/19 07:04	03/19/19 15:12	LEA	Mt. Juliet, TN

WPL-18-N L1079660-14 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:32 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 10:32	03/19/19 16:34	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	20	03/17/19 16:45	03/18/19 07:56	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 20:47	LEA	Mt. Juliet, TN

WPL-18-W L1079660-15 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:36 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1252457	1	03/14/19 10:36	03/20/19 13:31	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	100	03/17/19 16:45	03/18/19 05:53	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 19:48	LEA	Mt. Juliet, TN

WPL-18-S L1079660-16 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 10:34 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 10:34	03/19/19 17:15	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	20	03/17/19 16:45	03/18/19 13:38	TJD	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	10	03/19/19 07:04	03/19/19 17:50	LEA	Mt. Juliet, TN

WPL-15-2 L1079660-17 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:30 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 09:30	03/19/19 17:59	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	1	03/17/19 16:45	03/18/19 04:18	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	1	03/19/19 07:04	03/19/19 14:52	LEA	Mt. Juliet, TN

WPL-15-W L1079660-18 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:34 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 09:34	03/19/19 18:19	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	1	03/17/19 16:45	03/18/19 05:13	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	1	03/19/19 07:04	03/19/19 15:32	LEA	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

WPL-15-N L1079660-19 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:32 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 09:32	03/19/19 18:40	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	1	03/17/19 16:45	03/18/19 04:59	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1251804	1	03/19/19 07:04	03/19/19 15:52	LEA	Mt. Juliet, TN

WPL-15-S L1079660-20 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 09:36 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 09:36	03/19/19 19:00	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	1	03/17/19 16:45	03/18/19 05:26	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1252206	10	03/20/19 11:06	03/20/19 17:37	ADF	Mt. Juliet, TN

DUP-01 L1079660-21 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 00:00 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251478	1	03/18/19 11:25	03/18/19 11:38	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1252457	1.11	03/14/19 00:00	03/20/19 13:56	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	200	03/17/19 16:45	03/18/19 07:29	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1252206	400	03/20/19 11:06	03/20/19 18:16	ADF	Mt. Juliet, TN

DUP-02 L1079660-22 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 00:00 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251481	1	03/18/19 14:11	03/18/19 14:26	JD	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method 8015D/GRO	WG1251954	1	03/14/19 00:00	03/19/19 19:41	BMB	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	1	03/17/19 16:45	03/18/19 04:32	KME	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1252206	10	03/20/19 11:06	03/20/19 17:57	ADF	Mt. Juliet, TN

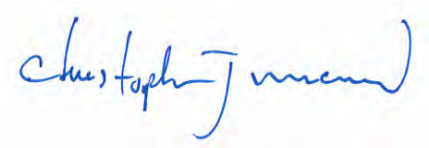
DUP-03 L1079660-23 Solid

Collected by: Jared Stoffel | Collected date/time: 03/14/19 00:00 | Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251481	1	03/18/19 14:11	03/18/19 14:26	JD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1251199	1	03/18/19 18:00	03/19/19 02:56	ELN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG1252206	1	03/20/19 11:06	03/20/19 17:18	ADF	Mt. Juliet, TN

1 Cp
2 Tc
3 Ss
4 Cn
5 Tr
6 Sr
7 Qc
8 Gl
9 Al
10 Sc

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 03/20/2019 21:29
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1079660-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 and 23
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1251313, WG1251478, WG1251477, WG1251476, WG1251481, WG1251199, WG1251954, WG1251804, WG1252457 and WG1252206

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?	X				
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			2
		Were MS/MSD RPDs within laboratory QC limits?		X			3
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?		X			4
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 03/20/2019 21:29
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1079660-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 and 23
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1251313, WG1251478, WG1251477, WG1251476, WG1251481, WG1251199, WG1251954, WG1251804, WG1252457 and WG1252206

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
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4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 03/20/2019 21:29
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1079660-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 and 23
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1251313, WG1251478, WG1251477, WG1251476, WG1251481, WG1251199, WG1251954, WG1251804, WG1252457 and WG1252206

ER #[1]	Description
1	8015 / WG1251313 o-Terphenyl L1079660-08, 09, 10, 11, 14, 15, 16, 21 and 4: Percent Recovery is outside of established control limits. 8270C WG1251804 2,4,6-Tribromophenol, 2-Fluorophenol, Phenol-d5 L1079660-10: Percent Recovery is outside of established control limits. 8270C WG1252206 2,4,6-Tribromophenol, 2-Fluorophenol, Phenol-d5 L1079660-21: Percent Recovery is outside of established control limits.
2	8015 WG1251313 C10-C28 Diesel Range: Percent Recovery is outside of established control limits.
3	8015 WG1251313 C10-C28 Diesel Range: Relative Percent Difference is outside of established control limits.
4	300.0 WG1251199 Chloride: Relative Percent Difference is outside of established control limits.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.9		1	03/18/2019 13:57	WG1251476

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	274		0.995	10.0	12.5	1	03/19/2019 00:01	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0870	0.333	4.17	10	03/19/2019 16:51	WG1251804
(S) 2-Fluorophenol	*79.4*				*12.0-120*		*03/19/2019 16:51*	WG1251804
(S) Phenol-d5	*62.6*				*10.0-120*		*03/19/2019 16:51*	WG1251804
(S) 2,4,6-Tribromophenol	*64.7*				*10.0-127*		*03/19/2019 16:51*	WG1251804

Sample Narrative:

L1079660-01 WG1251804: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	88.4		1	03/18/2019 11:54	WG1251477

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	1010		0.899	10.0	11.3	1	03/19/2019 00:17	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0786	0.333	3.77	10	03/19/2019 21:07	WG1251804
(S) 2-Fluorophenol	*50.3*				*12.0-120*		*03/19/2019 21:07*	WG1251804
(S) Phenol-d5	*41.1*				*10.0-120*		*03/19/2019 21:07*	WG1251804
(S) 2,4,6-Tribromophenol	*47.5*				*10.0-127*		*03/19/2019 21:07*	WG1251804

Sample Narrative:

L1079660-02 WG1251804: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	76.1		1	03/18/2019 11:54	WG1251477

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	457		1.04	10.0	13.1	1	03/19/2019 01:05	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0913	0.333	4.38	10	03/19/2019 20:08	WG1251804
(S) 2-Fluorophenol	*66.9*				*12.0-120*		*03/19/2019 20:08*	WG1251804
(S) Phenol-d5	*55.3*				*10.0-120*		*03/19/2019 20:08*	WG1251804
(S) 2,4,6-Tribromophenol	*59.6*				*10.0-127*		*03/19/2019 20:08*	WG1251804

Sample Narrative:

L1079660-03 WG1251804: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.0		1	03/18/2019 11:54	WG1251477

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	474		0.874	10.0	11.0	1	03/19/2019 01:21	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0764	0.333	3.66	10	03/19/2019 20:27	WG1251804
(S) 2-Fluorophenol	*73.3*				*12.0-120*		*03/19/2019 20:27*	WG1251804
(S) Phenol-d5	*62.2*				*10.0-120*		*03/19/2019 20:27*	WG1251804
(S) 2,4,6-Tribromophenol	*71.3*				*10.0-127*		*03/19/2019 20:27*	WG1251804

Sample Narrative:

L1079660-04 WG1251804: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	85.0		1	03/18/2019 11:54	WG1251477

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	458		0.936	10.0	11.8	1	03/19/2019 02:08	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0164	0.333	0.784	2	03/19/2019 18:10	WG1251804
(S) 2-Fluorophenol	*58.2*				*12.0-120*		*03/19/2019 18:10*	WG1251804
(S) Phenol-d5	*49.5*				*10.0-120*		*03/19/2019 18:10*	WG1251804
(S) 2,4,6-Tribromophenol	*58.1*				*10.0-127*		*03/19/2019 18:10*	WG1251804

Sample Narrative:

L1079660-05 WG1251804: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.5		1	03/18/2019 11:54	WG1251477

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	609		0.909	10.0	11.4	1	03/19/2019 02:24	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.00794	0.333	0.381	1	03/19/2019 16:11	WG1251804
(S) 2-Fluorophenol	*55.1*				*12.0-120*		*03/19/2019 16:11*	WG1251804
(S) Phenol-d5	*47.3*				*10.0-120*		*03/19/2019 16:11*	WG1251804
(S) 2,4,6-Tribromophenol	*54.3*				*10.0-127*		*03/19/2019 16:11*	WG1251804

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	89.6		1	03/18/2019 11:54	WG1251477

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	724		0.888	10.0	11.2	1	03/19/2019 02:40	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.00776	0.333	0.372	1	03/19/2019 16:31	WG1251804
(S) 2-Fluorophenol	*62.2*				*12.0-120*		*03/19/2019 16:31*	WG1251804
(S) Phenol-d5	*54.2*				*10.0-120*		*03/19/2019 16:31*	WG1251804
(S) 2,4,6-Tribromophenol	*59.4*				*10.0-127*		*03/19/2019 16:31*	WG1251804

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.1		1	03/18/2019 11:54	WG1251477

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.114	J	0.0271	0.100	0.125	1	03/19/2019 14:31	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*89.4*				*77.0-120*		*03/19/2019 14:31*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	532		40.2	4.00	99.9	20	03/18/2019 08:09	WG1251313
C28-C40 Oil Range	532		6.84	4.00	99.9	20	03/18/2019 08:09	WG1251313
(S) o-Terphenyl	*186*	J7			*18.0-148*		*03/18/2019 08:09*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0174	0.333	0.832	2	03/19/2019 18:30	WG1251804
(S) 2-Fluorophenol	*72.0*				*12.0-120*		*03/19/2019 18:30*	WG1251804
(S) Phenol-d5	*61.6*				*10.0-120*		*03/19/2019 18:30*	WG1251804
(S) 2,4,6-Tribromophenol	*65.3*				*10.0-127*		*03/19/2019 18:30*	WG1251804

Sample Narrative:

L1079660-08 WG1251804: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	81.1		1	03/18/2019 11:54	WG1251477

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.115	J	0.0284	0.100	0.131	1.06	03/19/2019 14:53	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*94.0*				*77.0-120*		*03/19/2019 14:53*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	164		39.7	4.00	98.6	20	03/18/2019 14:05	WG1251313
C28-C40 Oil Range	248		6.75	4.00	98.6	20	03/18/2019 14:05	WG1251313
(S) o-Terphenyl	*175*	J7			*18.0-148*		*03/18/2019 14:05*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0171	0.333	0.821	2	03/19/2019 18:49	WG1251804
(S) 2-Fluorophenol	*57.3*				*12.0-120*		*03/19/2019 18:49*	WG1251804
(S) Phenol-d5	*48.7*				*10.0-120*		*03/19/2019 18:49*	WG1251804
(S) 2,4,6-Tribromophenol	*57.4*				*10.0-127*		*03/19/2019 18:49*	WG1251804

Sample Narrative:

L1079660-09 WG1251804: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.4		1	03/18/2019 11:54	WG1251477

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.156		0.0316	0.100	0.146	1.2	03/19/2019 15:13	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*80.6*				*77.0-120*		*03/19/2019 15:13*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	7500		195	4.00	485	100	03/18/2019 08:36	WG1251313
C28-C40 Oil Range	5700		33.3	4.00	485	100	03/18/2019 08:36	WG1251313
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*03/18/2019 08:36*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.422	0.333	20.3	50	03/19/2019 19:29	WG1251804
(S) 2-Fluorophenol	*57.0*	J7			*12.0-120*		*03/19/2019 19:29*	WG1251804
(S) Phenol-d5	*45.9*	J7			*10.0-120*		*03/19/2019 19:29*	WG1251804
(S) 2,4,6-Tribromophenol	*54.2*	J7			*10.0-127*		*03/19/2019 19:29*	WG1251804

Sample Narrative:

L1079660-10 WG1251804: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.7		1	03/18/2019 11:54	WG1251477

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.114		0.0239	0.100	0.110	1	03/19/2019 15:33	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*95.8*				*77.0-120*		*03/19/2019 15:33*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	210	J3 J5 J6	17.8	4.00	44.1	10	03/18/2019 06:34	WG1251313
C28-C40 Oil Range	246		3.02	4.00	44.1	10	03/18/2019 06:34	WG1251313
(S) o-Terphenyl	*168*	J1			*18.0-148*		*03/18/2019 06:34*	WG1251313

Sample Narrative:

L1079660-11 WG1251313: Surrogate failure due to matrix interference

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0153	0.333	0.735	2	03/19/2019 19:09	WG1251804
(S) 2-Fluorophenol	*66.8*				*12.0-120*		*03/19/2019 19:09*	WG1251804
(S) Phenol-d5	*57.6*				*10.0-120*		*03/19/2019 19:09*	WG1251804
(S) 2,4,6-Tribromophenol	*66.3*				*10.0-127*		*03/19/2019 19:09*	WG1251804

Sample Narrative:

L1079660-11 WG1251804: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	87.9		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.129		0.0247	0.100	0.114	1	03/19/2019 15:54	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*91.4*				*77.0-120*		*03/19/2019 15:54*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	464		18.3	4.00	45.5	10	03/18/2019 06:21	WG1251313
C28-C40 Oil Range	407		3.12	4.00	45.5	10	03/18/2019 06:21	WG1251313
(S) o-Terphenyl	*65.0*				*18.0-148*		*03/18/2019 06:21*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0791	0.333	3.79	10	03/19/2019 21:25	WG1251804
(S) 2-Fluorophenol	*53.5*				*12.0-120*		*03/19/2019 21:25*	WG1251804
(S) Phenol-d5	*44.6*				*10.0-120*		*03/19/2019 21:25*	WG1251804
(S) 2,4,6-Tribromophenol	*52.4*				*10.0-127*		*03/19/2019 21:25*	WG1251804

Sample Narrative:

L1079660-12 WG1251804: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.3		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.104	J	0.0274	0.100	0.126	1	03/19/2019 16:14	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*97.4*				*77.0-120*		*03/19/2019 16:14*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		2.03	4.00	5.04	1	03/18/2019 04:45	WG1251313
C28-C40 Oil Range	1.19	J	0.345	4.00	5.04	1	03/18/2019 04:45	WG1251313
(S) o-Terphenyl	*88.6*				*18.0-148*		*03/18/2019 04:45*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.00876	0.333	0.420	1	03/19/2019 15:12	WG1251804
(S) 2-Fluorophenol	*67.4*				*12.0-120*		*03/19/2019 15:12*	WG1251804
(S) Phenol-d5	*57.8*				*10.0-120*		*03/19/2019 15:12*	WG1251804
(S) 2,4,6-Tribromophenol	*47.4*				*10.0-127*		*03/19/2019 15:12*	WG1251804

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.0		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0616	J	0.0258	0.100	0.119	1	03/19/2019 16:34	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*94.0*				*77.0-120*		*03/19/2019 16:34*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		38.3	4.00	95.2	20	03/18/2019 07:56	WG1251313
C28-C40 Oil Range	100		6.52	4.00	95.2	20	03/18/2019 07:56	WG1251313
(S) o-Terphenyl	*89.3*	J7			*18.0-148*		*03/18/2019 07:56*	WG1251313

Sample Narrative:

L1079660-14 WG1251313: Cannot run at lower dilution due to viscosity of extract

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0827	0.333	3.96	10	03/19/2019 20:47	WG1251804
(S) 2-Fluorophenol	*74.4*				*12.0-120*		*03/19/2019 20:47*	WG1251804
(S) Phenol-d5	*61.6*				*10.0-120*		*03/19/2019 20:47*	WG1251804
(S) 2,4,6-Tribromophenol	*73.0*				*10.0-127*		*03/19/2019 20:47*	WG1251804

Sample Narrative:

L1079660-14 WG1251804: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.6		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0257	0.100	0.118	1	03/20/2019 13:31	WG1252457
(S) a,a,a-Trifluorotoluene(FID)	*90.6*				*77.0-120*		*03/20/2019 13:31*	WG1252457

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	1570		190	4.00	473	100	03/18/2019 05:53	WG1251313
C28-C40 Oil Range	2070		32.4	4.00	473	100	03/18/2019 05:53	WG1251313
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*03/18/2019 05:53*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0822	0.333	3.94	10	03/19/2019 19:48	WG1251804
(S) 2-Fluorophenol	*58.1*				*12.0-120*		*03/19/2019 19:48*	WG1251804
(S) Phenol-d5	*49.8*				*10.0-120*		*03/19/2019 19:48*	WG1251804
(S) 2,4,6-Tribromophenol	*54.5*				*10.0-127*		*03/19/2019 19:48*	WG1251804

Sample Narrative:

L1079660-15 WG1251804: Dilution due to viscosity.

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	94.3		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0539	J	0.0230	0.100	0.106	1	03/19/2019 17:15	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*92.6*				*77.0-120*		*03/19/2019 17:15*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	48.1	J	34.2	4.00	84.9	20	03/18/2019 13:38	WG1251313
C28-C40 Oil Range	122		5.81	4.00	84.9	20	03/18/2019 13:38	WG1251313
(S) o-Terphenyl	*121*	J7			*18.0-148*		*03/18/2019 13:38*	WG1251313

Sample Narrative:

L1079660-16 WG1251313: Cannot run at lower dilution due to viscosity of extract

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0737	0.333	3.53	10	03/19/2019 17:50	WG1251804
(S) 2-Fluorophenol	*84.4*				*12.0-120*		*03/19/2019 17:50*	WG1251804
(S) Phenol-d5	*69.5*				*10.0-120*		*03/19/2019 17:50*	WG1251804
(S) 2,4,6-Tribromophenol	*60.0*				*10.0-127*		*03/19/2019 17:50*	WG1251804

Sample Narrative:

L1079660-16 WG1251804: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.7		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0507	J	0.0262	0.100	0.121	1	03/19/2019 17:59	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*99.9*				*77.0-120*		*03/19/2019 17:59*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	U		1.95	4.00	4.84	1	03/18/2019 04:18	WG1251313
C28-C40 Oil Range	0.718	J	0.331	4.00	4.84	1	03/18/2019 04:18	WG1251313
(S) o-Terphenyl	*108*				*18.0-148*		*03/18/2019 04:18*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.00840	0.333	0.403	1	03/19/2019 14:52	WG1251804
(S) 2-Fluorophenol	*65.4*				*12.0-120*		*03/19/2019 14:52*	WG1251804
(S) Phenol-d5	*56.5*				*10.0-120*		*03/19/2019 14:52*	WG1251804
(S) 2,4,6-Tribromophenol	*54.5*				*10.0-127*		*03/19/2019 14:52*	WG1251804

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	79.1		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0765	J	0.0274	0.100	0.126	1	03/19/2019 18:19	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*94.7*				*77.0-120*		*03/19/2019 18:19*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	13.5		2.04	4.00	5.06	1	03/18/2019 05:13	WG1251313
C28-C40 Oil Range	153		0.346	4.00	5.06	1	03/18/2019 05:13	WG1251313
(S) o-Terphenyl	*127*				*18.0-148*		*03/18/2019 05:13*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.00879	0.333	0.421	1	03/19/2019 15:32	WG1251804
(S) 2-Fluorophenol	*70.4*				*12.0-120*		*03/19/2019 15:32*	WG1251804
(S) Phenol-d5	*62.3*				*10.0-120*		*03/19/2019 15:32*	WG1251804
(S) 2,4,6-Tribromophenol	*61.5*				*10.0-127*		*03/19/2019 15:32*	WG1251804

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	76.8		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0859	J	0.0282	0.100	0.130	1	03/19/2019 18:40	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*98.1*				*77.0-120*		*03/19/2019 18:40*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	2.71	J	2.10	4.00	5.21	1	03/18/2019 04:59	WG1251313
C28-C40 Oil Range	3.62	J	0.357	4.00	5.21	1	03/18/2019 04:59	WG1251313
(S) o-Terphenyl	*102*				*18.0-148*		*03/18/2019 04:59*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.00905	0.333	0.433	1	03/19/2019 15:52	WG1251804
(S) 2-Fluorophenol	*60.4*				*12.0-120*		*03/19/2019 15:52*	WG1251804
(S) Phenol-d5	*52.7*				*10.0-120*		*03/19/2019 15:52*	WG1251804
(S) 2,4,6-Tribromophenol	*40.9*				*10.0-127*		*03/19/2019 15:52*	WG1251804

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	78.3		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0953	J	0.0277	0.100	0.128	1	03/19/2019 19:00	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*95.5*				*77.0-120*		*03/19/2019 19:00*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	39.1		2.06	4.00	5.11	1	03/18/2019 05:26	WG1251313
C28-C40 Oil Range	75.5		0.350	4.00	5.11	1	03/18/2019 05:26	WG1251313
(S) o-Terphenyl	*132*				*18.0-148*		*03/18/2019 05:26*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0888	0.333	4.25	10	03/20/2019 17:37	WG1252206
(S) 2-Fluorophenol	*78.8*				*12.0-120*		*03/20/2019 17:37*	WG1252206
(S) Phenol-d5	*68.0*				*10.0-120*		*03/20/2019 17:37*	WG1252206
(S) 2,4,6-Tribromophenol	*67.4*				*10.0-127*		*03/20/2019 17:37*	WG1252206

Sample Narrative:

L1079660-20 WG1252206: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.5		1	03/18/2019 11:38	WG1251478

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	U		0.0292	0.100	0.135	1.11	03/20/2019 13:56	WG1252457
(S) a,a,a-Trifluorotoluene(FID)	*77.9*				*77.0-120*		*03/20/2019 13:56*	WG1252457

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	5670		390	4.00	970	200	03/18/2019 07:29	WG1251313
C28-C40 Oil Range	4920		66.4	4.00	970	200	03/18/2019 07:29	WG1251313
(S) o-Terphenyl	*0.000*	J7			*18.0-148*		*03/18/2019 07:29*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		3.37	0.333	161	400	03/20/2019 18:16	WG1252206
(S) 2-Fluorophenol	*0.000*	J7			*12.0-120*		*03/20/2019 18:16*	WG1252206
(S) Phenol-d5	*0.000*	J7			*10.0-120*		*03/20/2019 18:16*	WG1252206
(S) 2,4,6-Tribromophenol	*0.000*	J7			*10.0-127*		*03/20/2019 18:16*	WG1252206

Sample Narrative:

L1079660-21 WG1252206: Dilution due to viscosity and matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	84.6		1	03/18/2019 14:26	WG1251481

Volatile Organic Compounds (GC) by Method 8015D/GRO

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
TPH (GC/FID) Low Fraction	0.0306	J	0.0256	0.100	0.118	1	03/19/2019 19:41	WG1251954
(S) a,a,a-Trifluorotoluene(FID)	*99.2*				*77.0-120*		*03/19/2019 19:41*	WG1251954

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	4.20	J	1.90	4.00	4.73	1	03/18/2019 04:32	WG1251313
C28-C40 Oil Range	1.60	J	0.324	4.00	4.73	1	03/18/2019 04:32	WG1251313
(S) o-Terphenyl	*99.8*				*18.0-148*		*03/18/2019 04:32*	WG1251313

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.0821	0.333	3.94	10	03/20/2019 17:57	WG1252206
(S) 2-Fluorophenol	*73.0*				*12.0-120*		*03/20/2019 17:57*	WG1252206
(S) Phenol-d5	*66.4*				*10.0-120*		*03/20/2019 17:57*	WG1252206
(S) 2,4,6-Tribromophenol	*57.5*				*10.0-127*		*03/20/2019 17:57*	WG1252206

Sample Narrative:

L1079660-22 WG1252206: Dilution due to matrix impact during extract concentration procedure

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.9		1	03/18/2019 14:26	WG1251481

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	461		0.959	10.0	12.1	1	03/19/2019 02:56	WG1251199

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Phenol	U		0.00838	0.333	0.402	1	03/20/2019 17:18	WG1252206
(S) 2-Fluorophenol	*70.1*				*12.0-120*		*03/20/2019 17:18*	WG1252206
(S) Phenol-d5	*60.8*				*10.0-120*		*03/20/2019 17:18*	WG1252206
(S) 2,4,6-Tribromophenol	*55.6*				*10.0-127*		*03/20/2019 17:18*	WG1252206

Method Blank (MB)

(MB) R3392841-1 03/18/19 13:57

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1079660-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1079660-01 03/18/19 13:57 • (DUP) R3392841-3 03/18/19 13:57

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	79.9	79.5	1	0.551		10

Laboratory Control Sample (LCS)

(LCS) R3392841-2 03/18/19 13:57

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3392825-1 03/18/19 11:54

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1079660-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1079660-02 03/18/19 11:54 • (DUP) R3392825-3 03/18/19 11:54

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	88.4	87.7	1	0.865		10

Laboratory Control Sample (LCS)

(LCS) R3392825-2 03/18/19 11:54

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3392819-1 03/18/19 11:38

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00100			

L1079660-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1079660-13 03/18/19 11:38 • (DUP) R3392819-3 03/18/19 11:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	79.3	79.2	1	0.209		10

Laboratory Control Sample (LCS)

(LCS) R3392819-2 03/18/19 11:38

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3392846-1 03/18/19 14:26

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1079665-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1079665-01 03/18/19 14:26 • (DUP) R3392846-3 03/18/19 14:26

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	90.0	90.8	1	0.891		10

Laboratory Control Sample (LCS)

(LCS) R3392846-2 03/18/19 14:26

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3392867-1 03/18/19 20:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	3.27	J	0.795	10.0

L1079512-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1079512-01 03/18/19 22:26 • (DUP) R3392867-3 03/18/19 22:42

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	229	165	1	32.0	J3	20

L1079660-23 Original Sample (OS) • Duplicate (DUP)

(OS) L1079660-23 03/19/19 02:56 • (DUP) R3392867-6 03/19/19 03:12

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	461	465	1	0.757		20

Laboratory Control Sample (LCS)

(LCS) R3392867-2 03/18/19 20:16

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	218	109	90.0-110	

L1079660-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1079660-04 03/19/19 01:21 • (MS) R3392867-4 03/19/19 01:37 • (MSD) R3392867-5 03/19/19 01:52

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	549	474	1070	1060	109	106	1	80.0-120			1.37	20

Method Blank (MB)

(MB) R3393163-3 03/19/19 12:08

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*103*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3393163-1 03/19/19 11:07 • (LCSD) R3393163-2 03/19/19 11:27

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.49	4.38	81.6	79.6	72.0-127			2.52	20
(S) a,a,a-Trifluorotoluene(FID)				*90.3*	*90.0*	*77.0-120*				

L1079660-22 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1079660-22 03/19/19 19:41 • (MS) R3393163-4 03/19/19 21:30 • (MSD) R3393163-5 03/19/19 21:51

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	6.50	0.0306	4.73	5.19	72.3	79.4	1	10.0-151			9.35	28
(S) a,a,a-Trifluorotoluene(FID)					*94.0*	*93.6*		*77.0-120*				

Method Blank (MB)

(MB) R3393423-3 03/20/19 11:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
TPH (GC/FID) Low Fraction	U		0.0217	0.100
(S) a,a,a-Trifluorotoluene(FID)	*98.3*			*77.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3393423-1 03/20/19 10:04 • (LCSD) R3393423-2 03/20/19 10:28

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPH (GC/FID) Low Fraction	5.50	4.50	4.90	81.8	89.2	72.0-127			8.61	20
(S) a,a,a-Trifluorotoluene(FID)				*102*	*104*	*77.0-120*				

Method Blank (MB)

(MB) R3392602-3 03/18/19 04:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*125*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3392602-2 03/18/19 03:51 • (LCSD) R3392602-1 03/18/19 03:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	42.2	41.5	84.4	83.0	50.0-150			1.67	20
(S) o-Terphenyl				*139*	*144*	*18.0-148*				

L1079660-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1079660-11 03/18/19 06:34 • (MS) R3392602-4 03/18/19 06:48 • (MSD) R3392602-5 03/18/19 07:01

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	55.2	210	811	139	1090	0.000	10	50.0-150	J5	J3 J6	141	20
(S) o-Terphenyl					*0.000*	*73.1*		*18.0-148*	J2			

Sample Narrative:

OS: Surrogate failure due to matrix interference

Method Blank (MB)

(MB) R3393171-3 03/19/19 14:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Phenol	U		0.00695	0.333
(S) Phenol-d5	*64.0*			*10.0-120*
(S) 2-Fluorophenol	*74.2*			*12.0-120*
(S) 2,4,6-Tribromophenol	*59.0*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3393171-1 03/19/19 13:53 • (LCSD) R3393171-2 03/19/19 14:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phenol	0.666	0.423	0.389	63.5	58.4	28.0-120			8.37	27
(S) Phenol-d5				*65.9*	*61.0*	*10.0-120*				
(S) 2-Fluorophenol				*76.4*	*71.6*	*12.0-120*				
(S) 2,4,6-Tribromophenol				*67.7*	*61.4*	*10.0-127*				

L1079660-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1079660-01 03/19/19 16:51 • (MS) R3393171-4 03/19/19 17:11 • (MSD) R3393171-5 03/19/19 17:31

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phenol	0.833	U	0.515	0.612	61.9	73.4	10	12.0-120			17.1	38
(S) Phenol-d5					*59.6*	*73.0*		*10.0-120*				
(S) 2-Fluorophenol					*72.8*	*81.1*		*12.0-120*				
(S) 2,4,6-Tribromophenol					*65.0*	*63.4*		*10.0-127*				

Sample Narrative:

OS: Dilution due to matrix impact during extract concentration procedure

Method Blank (MB)

(MB) R3393526-3 03/20/19 16:58

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Phenol	U		0.00695	0.333
(S) Phenol-d5	*63.2*			*10.0-120*
(S) 2-Fluorophenol	*71.9*			*12.0-120*
(S) 2,4,6-Tribromophenol	*55.1*			*10.0-127*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3393526-1 03/20/19 16:19 • (LCSD) R3393526-2 03/20/19 16:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Phenol	0.666	0.424	0.431	63.7	64.7	28.0-120			1.64	27
(S) Phenol-d5				*63.8*	*66.1*	*10.0-120*				
(S) 2-Fluorophenol				*71.2*	*73.9*	*12.0-120*				
(S) 2,4,6-Tribromophenol				*61.3*	*60.8*	*10.0-127*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MQL (dry)	Method Quantitation Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
SDL (dry)	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

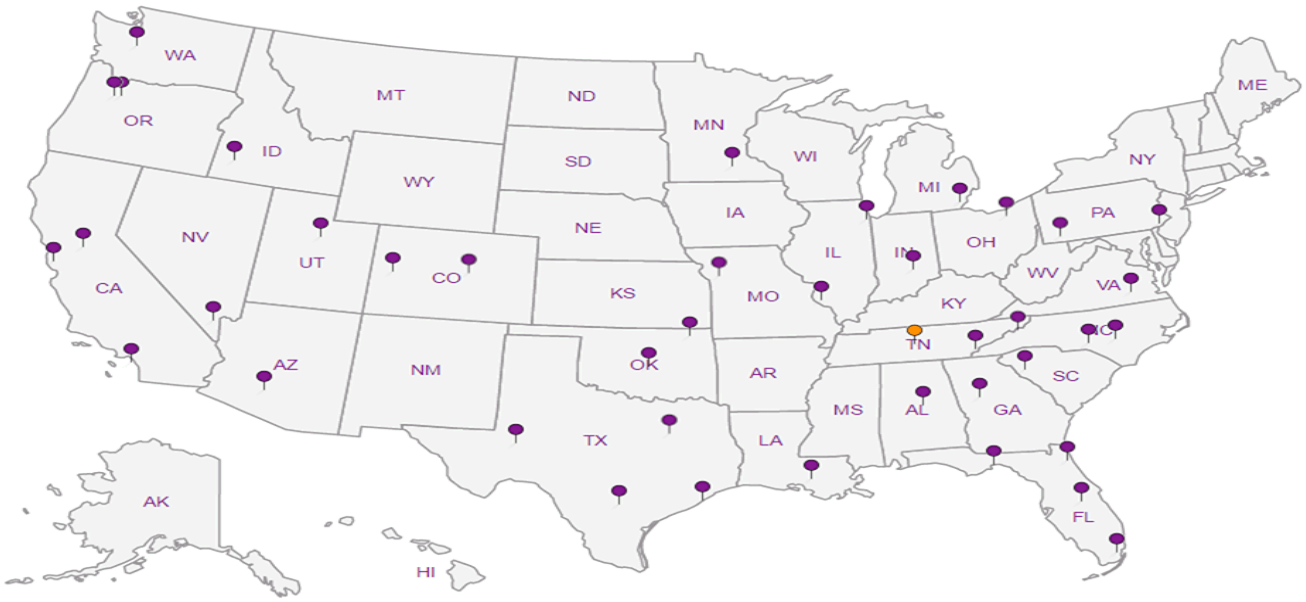
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



TRC Solutions - Austin, TX

Billing Information: Accounts Payable
21 Griffin Rd N.
Windsor, CT 06095

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Holly Frontier Waste Water

City/State Collected:

Phone: 512-684-3170
Fax:

Client Project #

Lab Project # TRC-Holly Frontier

Collected by (print): Jared Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 4

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1079660

H230

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO/ORO	Phenols	Hold	Remarks	Sample # (lab only)
WPL-06-2	Grab	Soil		3/14/19	1000	2	X			X			01
WPL-06-N					1002		X			X			02
WPL-06-S					1004		X			X			03
WPL-06-W					1006		X			X			04
WPL-07-2					1015		X			X			05
WPL-07-E					1017		X			X			06
WPL-07-W					1019		X			X			07
WPL-06-5					1245 BF	1	X			X	X		
WPL-07-5					1255	1	X			X	X		
WPL-06-N-2	↓	↓		↓	1300	1	X			X	X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold Samples as marked RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier SVA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

	Date:	Time:	
Relinquished by : (Signature)	3/15/19	1645	Received by: (Signature)
Relinquished by : (Signature)			Received by: (Signature)
Relinquished by : (Signature)			Received for lab by: (Signature)

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: 4.1 -0.1 °C Bottles Received: 13

If preservation required by Login: Date/Time

Date: 3/16/19 Time: 0845 DF 0800 BF 1230

Condition: NCF / OK

03-0101

Trc Solutions - Austin, Tx

Billing Information: Accounts Payable, 21 Griffin Rd N., Windsor, Ct 06095

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Holly Frontier Waste Water

City/State Collected:

Phone: 512-684-3170

Fax:

Client Project #

Lab Project # TRC - Holly Frontier

Collected by (print): Jared Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO / ORO	Phenols	Hold	Remarks	Sample # (lab only)
WPL-06-S-2	Grab	Soil		3/14/19	1302 BF	2	X			X	X		
WPL-06-W-2					1304	2	X			X	X		
WPL-07-E-2					1306	2	X			X	X		
WPL-07-W-2					1308	2	X			X	X		
WPL-08-2					0950	5		X	X	X			08
WPL-08-E					0952	5		X	X	X			09
WPL-09-2					0940	5		X	X	X			10
WPL-09-N					0942	5		X	X	X			11
WPL-09-W					0944	5		X	X	X			12
WPL-18-2					1030	5		X	X	X			13

Chain of Custody Page 2 of 4

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # 1079660

Table #

Acctnum: PIORESITX

Template:

Prelogin:

TSR:

PB:

Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold Samples as marked

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier SWA

Tracking # RAD SCREEN: <0.5 mR/hr

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature) — Date: 3/15/19 — Time: 1645 — Received by: (Signature)

Relinquished by : (Signature) — Date: — Time: — Received by: (Signature)

Relinquished by : (Signature) — Date: — Time: — Received for lab by: (Signature)

Trip Blank Received: Yes / No HCL / MeoH TBR

Temp: 4.1-0.1=4.0 °C Bottles Received: 2 AS 113

Date: 3/16/19 Time: 0845 BF 0800 BF 1230

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 3 of 4

Pace Analytical® National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1079660

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Holly Frontier Waste Water

City/State Collected:

Phone: Fax:

Client Project #

Lab Project # TRC-HollyFrontier

Collected by (print): Dave Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Billing Information: Accounts Payable, 21 Griffin Rd. N., Windsor, CT 06095

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO/ORO	Phenols	Hold	Remarks	Sample # (lab only)
WPL-18-N	Grab	Soil		3/14/19	1032	5		X	X	X			14
WPL-18-W					1036			X	X	X			15
WPL-18-S					1034			X	X	X			16
WPL-15-2					0930			X	X	X			17
WPL-15-W					0934			X	X	X			18
WPL-15-N					0932			X	X	X			19
WPL-15-S					0936			X	X	X			20
WPL-08-5					1605			X	X	X	X		
WPL-09-5					1610			X	X	X	X		
WPL-15-3					1615			X	X	X	X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold Samples as marked RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __UPS __FedEx __Courier SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 4.1-0.1=4.0 °C Bottles Received: 6 x 5

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/15/19	1645	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Date: 3/16/19 Time: ~~0845~~ 0800 BF R30

Chain of Custody Page 4 of 4

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L # 1079660

Table #

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

TRC Solutions - Austin, Tx

Billing Information:
Accounts Payable
21 Griffin Rd N.
Windsor, CT 06095

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Holly Frontier Waste Wate

City/State Collected:

Phone:
Fax:

Client Project #

Lab Project # TRC-Holly Frontier

Collected by (print): Jared Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO / ORO	Phenols	Hold	Remarks	Sample # (lab only)
Dup-01	Grab	Soil		3/14/19	—	5		x	x	x			21
Dup-02	↓	↓		↓	—	5		x	x	x			22
Dup-03	↓	↓		↓	—	2	x			x			33

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold Samples as marked RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/15/19	1645	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 4.1 -0.1=4.0 °C Bottles Received: 113

Date: 3/16/19 Time: 0845 BF 0800 BF 1230

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Andy Vann

From: Chris McCord
Sent: Monday, March 18, 2019 12:03 PM
To: Andy Vann; Login; Due SVOC; Due WetLab
Subject: RE: L1079660/L1079665 *TRCMTX* place on hold

Importance: High

Please proceed with testing as originally requested. Add GRO back to L1079660-08 thru -22 and change CHLORIDE to CHLORIDE-300 on L1079660-01 thru -07, -23 and place into LG:DONE: WETP:WIP:WG1251199 WET:NEED.

Thanks,

Christopher McCord
Project Manager
Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.3281 | Cell 615.504.3183
cmccord@pacenational.com|pacenational.com

ESC Lab Sciences is now Pace Analytical National Center for Testing & Innovation! Please make note of my new email address and website.

From: Andy Vann
Sent: Monday, March 18, 2019 9:31 AM
To: Chris McCord; Login; Due SVOC; Due WetLab
Subject: RE: L1079660/L1079665 *TRCMTX* place on hold

Removed GRO from L1079660-08 thru -22. Left all others in place.

From: Chris McCord
Sent: Monday, March 18, 2019 9:12 AM
To: Login; Due SVOC; Due WetLab
Subject: L1079660/L1079665 *TRCMTX* place on hold
Importance: High

Changes coming today. Please place on hold until changes are in. Lab – please hold all analyses currently in progress.

CHLORIDE (will need to be changed to CHLORIDE-300):
L1079660-01 thru -07; -23 are in LG:DONE: WETP:WIP:WG1251199

DRORLA:
L1079660-08 thru -22 are in LG:DONE:WG1251116 OP:DONE:WG1251313 SEMI:HERE:WG1251313
L1079665-01 and -02 are in LG:DONE:WG1251116 OP:DONE:WG1251313 SEMI:HERE:WG1251313

GRO:
L1079660-08 thru -22 are in NEED.

Thanks,

Christopher McCord
Project Manager
Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.3281 | Cell 615.504.3183
cmccord@pacenational.com|pacenational.com

ESC Lab Sciences is now Pace Analytical National Center for Testing & Innovation! Please make note of my new email address and website.

Andy Vann

Pace Analytical®
National Center for Testing & Innovation

Login #:L1079660	Client:TRCMTX	Date:03/16	Evaluated by:Kelsey S

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time	x	Login Clarification Needed		**If Broken Container:**
	Temperature not in range		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type		Please specify Metals requested.		Insufficient packing material inside cooler
	pH not in range.		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Couri
	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments: What method should PHENOLS be ran by?

Client informed by:		Call	x	Email		Voice Mail		Date:3/18/19	Time:11:46
TSR Initials:CM	Client Contact: Julie Speer								

Login Instructions:

Log for SV8270ACID.

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 20, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1079665
Samples Received:	03/16/2019
Project Number:	322192.2019.0000
Description:	Navajo Artesia Dec 2018 Wastewater Release

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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Total Solids by Method 2540 G-2011 11

Semi-Volatile Organic Compounds (GC) by Method 8015 12

Gl: Glossary of Terms 13

Al: Accreditations & Locations 14

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WPL-12 L1079665-01 Solid

Collected by: Jared Stoffel
Collected date/time: 03/14/19 09:10
Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251481	1	03/18/19 14:11	03/18/19 14:26	JD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	20	03/17/19 16:45	03/18/19 13:51	TJD	Mt. Juliet, TN

WPL-19 L1079665-02 Solid

Collected by: Jared Stoffel
Collected date/time: 03/14/19 09:05
Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1251481	1	03/18/19 14:11	03/18/19 14:26	JD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1251313	1	03/17/19 16:45	03/18/19 05:40	KME	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 03/20/2019 09:26
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1079665-01 and 02
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1251313 and WG1251481

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?	X				
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?		X			2
		Were MS/MSD RPDs within laboratory QC limits?		X			3
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 03/20/2019 09:26
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1079665-01 and 02
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1251313 and WG1251481

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?			X		
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 03/20/2019 09:26
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1079665-01 and 02
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1251313 and WG1251481

ER #[1]	Description
1	8015 / WG1251313 o-Terphenyl L1079665-01 and 4: Percent Recovery is outside of established control limits.
2	8015 WG1251313 C10-C28 Diesel Range: Percent Recovery is outside of established control limits.
3	8015 WG1251313 C10-C28 Diesel Range: Relative Percent Difference is outside of established control limits.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.0		1	03/18/2019 14:26	WG1251481

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	59.8	J	35.8	4.00	88.9	20	03/18/2019 13:51	WG1251313
C28-C40 Oil Range	107		6.09	4.00	88.9	20	03/18/2019 13:51	WG1251313
(S) o-Terphenyl	*136*	J7			*18.0-148*		*03/18/2019 13:51*	WG1251313

Sample Narrative:

L1079665-01 WG1251313: Cannot run at lower dilution due to viscosity of extract

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	80.9		1	03/18/2019 14:26	WG1251481

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	7.60		1.99	4.00	4.95	1	03/18/2019 05:40	WG1251313
C28-C40 Oil Range	20.8		0.339	4.00	4.95	1	03/18/2019 05:40	WG1251313
(S) o-Terphenyl	*126*				*18.0-148*		*03/18/2019 05:40*	WG1251313

Method Blank (MB)

(MB) R3392846-1 03/18/19 14:26

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L1079665-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1079665-01 03/18/19 14:26 • (DUP) R3392846-3 03/18/19 14:26

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	90.0	90.8	1	0.891		10

Laboratory Control Sample (LCS)

(LCS) R3392846-2 03/18/19 14:26

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Method Blank (MB)

(MB) R3392602-3 03/18/19 04:04

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*125*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3392602-2 03/18/19 03:51 • (LCSD) R3392602-1 03/18/19 03:37

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	42.2	41.5	84.4	83.0	50.0-150			1.67	20
(S) o-Terphenyl				*139*	*144*	*18.0-148*				

L1079660-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1079660-11 03/18/19 06:34 • (MS) R3392602-4 03/18/19 06:48 • (MSD) R3392602-5 03/18/19 07:01

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
C10-C28 Diesel Range	50.0	190	735	126	1090	0.000	10	50.0-150	J5	J3 J6	141	20
(S) o-Terphenyl					*0.000*	*73.1*		*18.0-148*	J2			

Sample Narrative:

OS: Surrogate failure due to matrix interference

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MQL (dry)	Method Quantitation Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
SDL (dry)	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

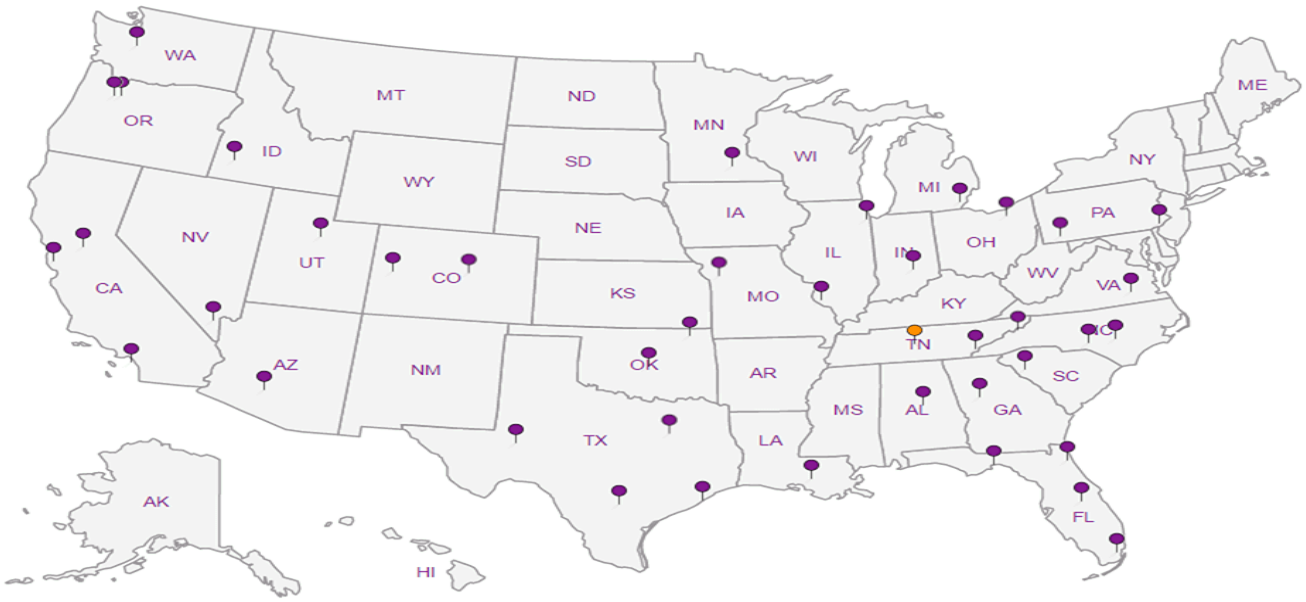
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



TRC Solutions-Austin, TX

Billing Information: Accounts Payable, 21 Griffin Rd. N., Windsor, CT 06095

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Holly Frontier Waste Water

City/State Collected:

Phone: 512-684-3170
Fax:

Client Project #

Lab Project # TRCNTX-HollyFrontier

Collected by (print): Jared Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Quote #

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Pres Chk

MRD only

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	MRD only	Remarks	Sample # (lab only)
WPL-12	Grab	Soil	—	3/14/19	0910	5	X		01
WPL-19	Grab	Soil	—	3/14/19	0905	5	X		02

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: RAD SCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier SWA

Tracking #

Relinquished by : (Signature) Date: 3/15/19 Time: 1645

Received by: (Signature)

Relinquished by : (Signature) Date: Time:

Received by: (Signature)

Relinquished by : (Signature) Date: Time:

Received for lab by: (Signature)

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: 9.1-0.1=9.0 °C Bottles Received: 10

Date: 3/16/19 Time: 0845 BF 0800 BC 1230

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Sample Receipt Checklist
COC Seal Present/Intact: NP __Y __N
COC Signed/Accurate: Y __N
Bottles arrive intact: Y __N
Correct bottles used: Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1079665
H231

Acctnum: PIORESITX
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

March 22, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1080755
Samples Received:	03/16/2019
Project Number:	
Description:	Holly Frontier Waste Water

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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WPL-06-N-2 L1080755-01 Solid

Collected by: Jared Stoffel
Collected date/time: 03/14/19 13:00
Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1253086	1	03/21/19 05:47	03/21/19 06:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1253116	1	03/21/19 10:00	03/21/19 18:22	ST	Mt. Juliet, TN

WPL-07-W-2 L1080755-02 Solid

Collected by: Jared Stoffel
Collected date/time: 03/14/19 13:08
Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1253086	1	03/21/19 05:47	03/21/19 06:00	KDW	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1253116	1	03/21/19 10:00	03/21/19 18:30	ST	Mt. Juliet, TN

WPL-09-5 L1080755-03 Solid

Collected by: Jared Stoffel
Collected date/time: 03/14/19 16:10
Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Total Solids by Method 2540 G-2011	WG1253086	1	03/21/19 05:47	03/21/19 06:00	KDW	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method 8015	WG1253012	1	03/20/19 21:21	03/21/19 03:47	KME	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 03/22/2019 10:46
Project Name: Holly Frontier Waste Water	Laboratory Job Number: L1080755-01, 02 and 03
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1253012, WG1253086 and WG1253116

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?	X				
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?	X				
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			1
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?		X			2
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 03/22/2019 10:46
Project Name: Holly Frontier Waste Water	Laboratory Job Number: L1080755-01, 02 and 03
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1253012, WG1253086 and WG1253116

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 03/22/2019 10:46
Project Name: Holly Frontier Waste Water	Laboratory Job Number: L1080755-01, 02 and 03
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1253012, WG1253086 and WG1253116

ER #[1]	Description
1	WG1253012 o-Terphenyl R3393574-2 and 3: Percent Recovery is outside of established control limits.
2	300.0 WG1253116 Chloride: Relative Percent Difference is outside of established control limits.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	90.0		1	03/21/2019 06:00	WG1253086

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	506		0.884	10.0	11.1	1	03/21/2019 18:22	WG1253116

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	91.4		1	03/21/2019 06:00	WG1253086

Wet Chemistry by Method 300.0

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
Chloride	421		0.870	10.0	10.9	1	03/21/2019 18:30	WG1253116

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	82.9		1	03/21/2019 06:00	WG1253086

Semi-Volatile Organic Compounds (GC) by Method 8015

Analyte	Result (dry)	Qualifier	SDL (dry)	Unadj. MQL	MQL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg	mg/kg		date / time	
C10-C28 Diesel Range	6.11		1.94	4.00	4.82	1	03/21/2019 03:47	WG1253012
C28-C40 Oil Range	5.17		0.330	4.00	4.82	1	03/21/2019 03:47	WG1253012
(S) o-Terphenyl	*88.7*				*18.0-148*		*03/21/2019 03:47*	WG1253012

Method Blank (MB)

(MB) R3393776-1 03/21/19 06:00

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00200			

L1080702-11 Original Sample (OS) • Duplicate (DUP)

(OS) L1080702-11 03/21/19 06:00 • (DUP) R3393776-3 03/21/19 06:00

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	75.5	75.1	1	0.565		10

Laboratory Control Sample (LCS)

(LCS) R3393776-2 03/21/19 06:00

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	49.9	99.9	85.0-115	

Method Blank (MB)

(MB) R3394019-1 03/21/19 17:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chloride	2.51	J	0.795	10.0

L1080755-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1080755-02 03/21/19 18:30 • (DUP) R3394019-3 03/21/19 18:39

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	421	390	1	7.49		20

L1079892-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1079892-01 03/21/19 20:47 • (DUP) R3394019-4 03/21/19 20:55

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	90.3	119	1	27.2	J3	20

Laboratory Control Sample (LCS)

(LCS) R3394019-2 03/21/19 18:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	200	199	99.4	90.0-110	

L1080479-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1080479-02 03/21/19 21:29 • (MS) R3394019-5 03/21/19 21:38 • (MSD) R3394019-6 03/21/19 21:46

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	500	9.45	522	547	103	108	1	80.0-120			4.75	20

Method Blank (MB)

(MB) R3393574-1 03/21/19 00:35

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
C10-C28 Diesel Range	U		1.61	4.00
C28-C40 Oil Range	U		0.274	4.00
(S) o-Terphenyl	*138*			*18.0-148*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3393574-2 03/21/19 00:48 • (LCSD) R3393574-3 03/21/19 01:02

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
C10-C28 Diesel Range	50.0	41.8	43.6	83.6	87.2	50.0-150			4.22	20
(S) o-Terphenyl				*170*	*162*	*18.0-148*	J1	J1		

L1080227-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1080227-01 03/21/19 02:06 • (MS) R3393574-4 03/21/19 02:23 • (MSD) R3393574-5 03/21/19 02:40

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
C10-C28 Diesel Range	49.2	ND	36.1	35.5	73.4	73.5	1	50.0-150			1.68	20
(S) o-Terphenyl					*111*	*111*		*18.0-148*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MQL (dry)	Method Quantitation Limit.
MQL	Method Quantitation Limit.
ND	Not detected at the Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
SDL (dry)	Sample Detection Limit.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

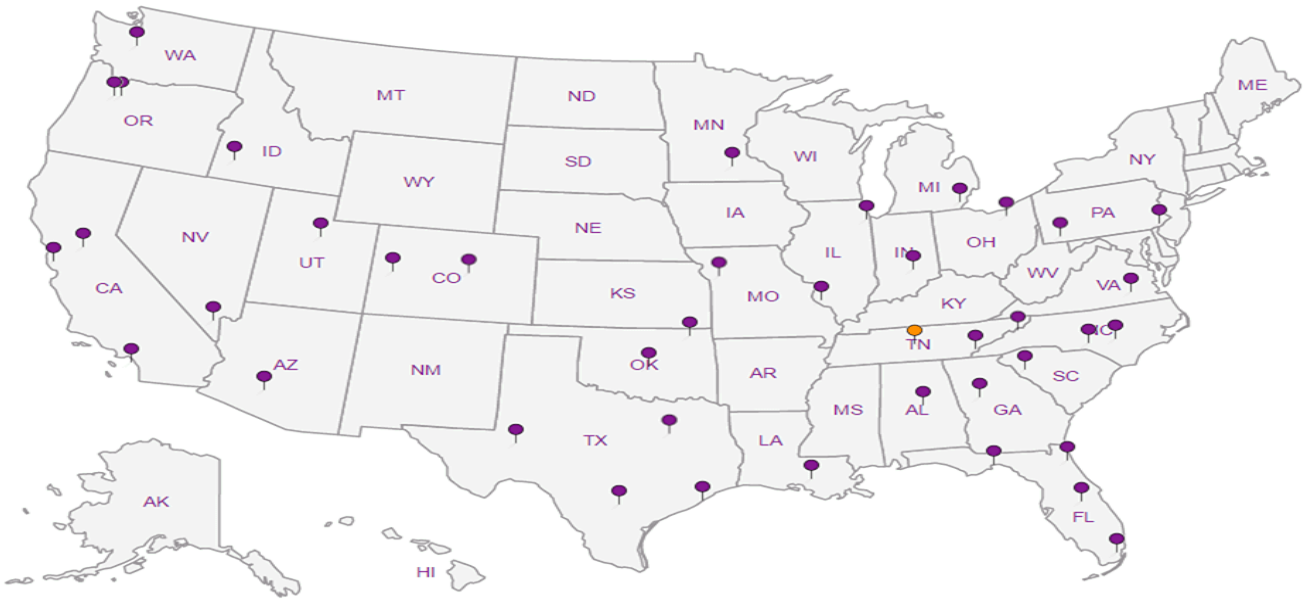
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Chain of Custody Page 1 of 4

Pace Analytical®
National Center for Testing & Innovation

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Mount Juliet, TN 37122
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Phone: 800-767-5859
Fax: 615-758-5859

L# L079660 TD

H230

L1080755

TRC Solutions - Austin, TX

Billing Information:
Accounts Payable
21 Griffin Rd N.
Windsor, CT 06095

Report to: Julie Speer

Email To: JSpeer@trcsolutions.com

Project Description: Holly Frontier Waste Water

City/State Collected:

Phone: 512-684-3170
Fax:

Client Project #

Lab Project # TRC-Holly Frontier

Collected by (print): Jared Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Immediately Packed on ice N ___ Y X

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO/ORO	Phenols	Hold	Remarks	Sample # (lab only)
WPL-06-2	Grab	Soil		3/14/19	1000	2	X			X			01 TD
WPL-06-N					1002		X			X			02
WPL-06-S					1004		X			X			03
WPL-06-W					1006		X			X			04
WPL-07-2					1015		X			X			05
WPL-07-E					1017		X			X			06
WPL-07-W					1019		X			X			07
WPL-06-S					1245 BF	1	X			X	X		
WPL-07-S					1255	1	X			X	X		
WPL-06-N-2	↓	↓		↓	1300	1	X			X	X		-01

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ____

Remarks: Hold Samples as marked RADSCREEN: <0.5 mR/hr

pH ____ Temp ____
Flow ____ Other ____

Sample Receipt Checklist
COC Seal Present/Intact: ✓NP __Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

Samples returned via: __UPS __FedEx __Courier SWA

Tracking #

Trip Blank Received: Yes (No) HCL / MeoH TBR

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	3/15/19	1645	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Temp: 4.1 °C Bottles Received: 13
Date: 3/16/19 Time: 0845 BF 0800 BF 1230

If preservation required by Login: Date/Time

03-0101

Condition: (NCF) / (OK) TD

Trc Solutions - Austin, Tx

Billing Information: Accounts Payable, 21 Griffin Rd N., Windsor, Ct 06095

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Holly Frontier Waste Water

City/State Collected:

Phone: 512-684-3170 Fax:

Client Project #

Lab Project #: TRC - Holly Frontier

Collected by (print): Jared Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Pres Chk

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO/ORO	Phenols	Hold	Remarks	Sample # (lab only)
WPL-06-S-2	Grab	Soil		3/14/19	1302	2	X			X	X		
WPL-06-W-2					1304	2	X			X	X		
WPL-07-E-2					1306	2	X			X	X		
WPL-07-W-2					1308	2	X			X	X		-02
WPL-08-2					0950	5		X	X	X			08
WPL-08-E					0952	5		X	X	X			09
WPL-09-2					0940	5		X	X	X			10
WPL-09-N					0942	5		X	X	X			11
WPL-09-W					0944	5		X	X	X			12
WPL-18-2					1030	5		X	X	X			13

TD

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold Samples as marked

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier SWA

Tracking #

RAD SCREEN: <0.5 mR/hr

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/15/19	1645	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: 9.1 -0.1 = 9.0 °C Bottles Received: 13

Date: 3/16/19 Time: 0845 BF 0800 BF 1230

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

TD

Chain of Custody Page 2 of 4

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1079660 TD

Table # L1080755

Acctnum: PIORESITX

Template:

Prelogin:

TSR:

PB:

Shipped Via:

TRC Solutions - Austin, TX

Billing Information: Accounts Payable, 21 Griffin Rd. N., Windsor, CT 06095

Pres Chk

Report to: Julie Speer

Email To: jspeer@trcsolutions.com

Project Description: Holly Frontier Waste Water

City/State Collected:

Phone: Fax:

Client Project #

Lab Project # TRC-HollyFrontier

Collected by (print): Dave Stoffel

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO/ORO	Phenols	Hold	Remarks	Sample # (lab only)
WPL-18-N	Grab	Soil		3/14/19	1032	5		X	X	X			14 TO
WPL-18-W					1036			X	X	X			15
WPL-18-S					1034			X	X	X			16
WPL-15-E					0930			X	X	X			17
WPL-15-W					0934			X	X	X			18
WPL-15-N					0932			X	X	X			19
WPL-15-S					0936			X	X	X			20
WPL-06-S					1605			X	X	X	X		
WPL-09-S					1610			X	X	X	X		-03
WPL-15-3					1615			X	X	X	X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks: Hold Samples as max RAD SCREEN: <0.5 mR/hr

pH ____ Temp ____

Flow ____ Other ____

Samples returned via: __ UPS __ FedEx __ Courier SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	3/15/19	1645		
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 9.1-0.1=9.0 °C Bottles Received: 15
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/16/19 Time: 0845 0800 BF R30
				Hold: Condition: NCF / OK TO

Chain of Custody Page 2 of 4

Pace Analytical
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# ~~1079666~~ TD

Table # L1080755

Acctnum:

Template:

Prelogin:

TSR:

PB:

Shipped Via:

Troy Dunlap L1080755

From: Chris McCord
Sent: Wednesday, March 20, 2019 5:22 PM
To: Login; Sample Storage; Due SVOC; Due WetLab
Subject: L1079660 *TRCATX* RUSH relog from hold 03-0101
Attachments: COCL1079660.pdf; In01L1079660.pdf

Importance: High

Please log hold samples WPL-09-5 for DRORLA and TS. Log hold sample WPL-06-N-2 and WPL-07-W-2 for CHLORIDE-300 and TS. Please log as R2 due 3/21.

Thanks,

Christopher McCord
Project Manager

Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.3281 | Cell 615.504.3183
cmccord@pacenational.com | pacenational.com

ESC Lab Sciences is now Pace Analytical National Center for Testing & Innovation! Please make note of my new email address and website.

From: Speer, Julie [mailto:JSpeer@trcsolutions.com]
Sent: Wednesday, March 20, 2019 1:02 PM
To: Chris McCord
Subject: L1079660 - additional analysis request

Chris,

Please proceed with analysis of the following sample for DRO/ORO:
WPL-09-5

Please proceed with analysis of the following samples for chloride:
WPL-06-N-2
WPL-07-W-2

We would like these analyses to be completed on a 24-hr turnaround time. Please let me know if there will be any issues meeting that TAT.

Thanks!
Julie Speer, P.G.
Project Manager

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 05, 2019

TRC Solutions - Austin, TX

Sample Delivery Group:	L1083368
Samples Received:	03/16/2019
Project Number:	322192.2019.0000
Description:	Navajo Artesia Dec 2018 Wastewater Release

Report To: Julie Speer
505 E. Huntland Dr, Ste 250
Austin, TX 78752

Entire Report Reviewed By:

Chris McCord
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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WPL-06-N L1083368-01 WW

Collected by: Jared Stoffel
Collected date/time: 03/14/19 10:02
Received date/time: 03/16/19 12:30

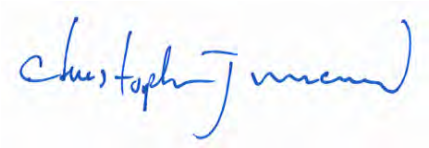
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1259053	1	04/01/19 19:04	04/01/19 19:04	CGD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1259867	1	04/04/19 02:30	04/04/19 02:30	ELN	Mt. Juliet, TN

WPL-07-W L1083368-02 WW

Collected by: Jared Stoffel
Collected date/time: 03/14/19 10:19
Received date/time: 03/16/19 12:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1312	WG1259053	1	04/01/19 19:04	04/01/19 19:04	CGD	Mt. Juliet, TN
Wet Chemistry by Method 300.0	WG1259867	1	04/04/19 02:45	04/04/19 02:45	ELN	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Chris McCord
Project Manager

Laboratory Data Package Cover Page

This data package consists of this signature page, the laboratory review checklist, and the following reportable data as applicable:

R1 - Field chain-of-custody documentation;

R2 - Sample identification cross-reference;

R3 - Test reports (analytical data sheets) for each environmental sample that includes:

a. Items consistent with NELAC Chapter 5,

b. dilution factors,

c. preparation methods,

d. cleanup methods, and

e. if required for the project, tentatively identified compounds (TICs).

R4 - Surrogate recovery data including:

a. Calculated recovery (%R), and

b. The laboratory's surrogate QC limits.

R5 - Test reports/summary forms for blank samples;

R6 - Test reports/summary forms for laboratory control samples (LCSs) including:

a. LCS spiking amounts,

b. Calculated %R for each analyte, and

c. The laboratory's LCS QC limits.

R7 - Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a. Samples associated with the MS/MSD clearly identified,

b. MS/MSD spiking amounts,

c. Concentration of each MS/MSD analyte measured in the parent and spiked samples,

d. Calculated %Rs and relative percent differences (RPDs), and

e. The laboratory's MS/MSD QC limits

R8 - Laboratory analytical duplicate (if applicable) recovery and precision:

a. The amount of analyte measured in the duplicate,

b. The calculated RPD, and

c. The laboratory's QC limits for analytical duplicates.

R9 - List of method quantitation limits (MQLs) and detectability check sample results for each analyte for each method and matrix.

R10 - Other problems or anomalies.

Release Statement: I am responsible for the release of this laboratory data package. This laboratory is NELAC accredited under the Texas Laboratory Accreditation Program for all the methods, analytes, and matrices reported in this data package except as noted in the Exception Reports. The data have been reviewed and are technically compliant with the requirements of the methods used, except where noted by the laboratory in the Exception Reports. By my signature below, I affirm to the best of my knowledge all problems/anomalies observed by the laboratory have been identified in the Laboratory Review Checklist, and no information affecting the quality of the data has been knowingly withheld.



Chris McCord
Project Manager

Laboratory Review Checklist: Reportable Data

Laboratory Name: Pace Analytical National	LRC Date: 04/05/2019 17:06
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1083368-01 and 02
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1259867 and WG1259053

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
R1	OI	Chain-of-custody (C-O-C)					
		Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?	X				
		Were all departures from standard conditions described in an exception report?			X		
R2	OI	Sample and quality control (QC) identification					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	Test reports					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample detection limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?	X				
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		Were bulk soils/solids samples for volatile analysis extracted with methanol per SW846 Method 5035?			X		
		If required for the project, are TICs reported?			X		
R4	O	Surrogate recovery data					
		Were surrogates added prior to extraction?			X		
		Were surrogate percent recoveries in all samples within the laboratory QC limits?	X				
R5	OI	Test reports/summary forms for blank samples					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	Laboratory control samples (LCS):					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability check sample data document the laboratory's capability to detect the COCs at the MDL used to calculate the SDLs?	X				
		Was the LCSD RPD within QC limits?	X				
R7	OI	Matrix spike (MS) and matrix spike duplicate (MSD) data					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?	X				
R8	OI	Analytical duplicate data					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	Method quantitation limits (MQLs):					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs and DCSs included in the laboratory data package?	X				
R10	OI	Other problems/anomalies					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Was applicable and available technology used to lower the SDL to minimize the matrix interference effects on the sample results?	X				
		Is the laboratory NELAC-accredited under the Texas Laboratory Accreditation Program for the analytes, matrices and methods associated with this laboratory data package?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Supporting Data

Laboratory Name: Pace Analytical National	LRC Date: 04/05/2019 17:06
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1083368-01 and 02
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1259867 and WG1259053

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	Initial calibration (ICAL)					
		Were response factors and/or relative response factors for each analyte within QC limits?			X		
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	Initial and continuing calibration verification (ICCV and CCV) and continuing calibration blank (CCB):					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	Mass spectral tuning					
		Was the appropriate compound for the method used for tuning?			X		
		Were ion abundance data within the method-required QC limits?			X		
S4	O	Internal standards (IS)					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	Raw data (NELAC Section 5.5.10)					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?			X		
S6	O	Dual column confirmation					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	Tentatively identified compounds (TICs)					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	Interference Check Sample (ICS) results					
		Were percent recoveries within method QC limits?			X		
S9	I	Serial dilutions, post digestion spikes, and method of standard additions					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	Method detection limit (MDL) studies					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	Proficiency test reports					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	Standards documentation					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	Compound/analyte identification procedures					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	Demonstration of analyst competency (DOC)					
		Was DOC conducted consistent with NELAC Chapter 5?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	Verification/validation documentation for methods (NELAC Chapter 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	Laboratory standard operating procedures (SOPs)					
		Are laboratory SOPs current and on file for each method performed	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Laboratory Review Checklist: Exception Reports

Laboratory Name: Pace Analytical National	LRC Date: 04/05/2019 17:06
Project Name: Navajo Artesia Dec 2018 Wastewater Release	Laboratory Job Number: L1083368-01 and 02
Reviewer Name: Chris McCord	Prep Batch Number(s): WG1259867 and WG1259053

ER #[1]	Description
	The Exception Report intentionally left blank, there are no exceptions applied to this SDG.

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. O = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		4/1/2019 7:04:28 PM	WG1259053
Fluid	3		4/1/2019 7:04:28 PM	WG1259053
Final pH	6.81		4/1/2019 7:04:28 PM	WG1259053

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Chloride	36.9		0.0519	1.00	1.00	1	04/04/2019 02:30	WG1259867

Preparation by Method 1312

Analyte	Result	Qualifier	Prep date / time	Batch
SPLP Extraction	-		4/1/2019 7:04:28 PM	WG1259053
Fluid	3		4/1/2019 7:04:28 PM	WG1259053
Final pH	7.11		4/1/2019 7:04:28 PM	WG1259053

Wet Chemistry by Method 300.0

Analyte	Result mg/l	Qualifier	SDL mg/l	Unadj. MQL mg/l	MQL mg/l	Dilution	Analysis date / time	Batch
Chloride	47.3		0.0519	1.00	1.00	1	04/04/2019 02:45	WG1259867

Method Blank (MB)

(MB) R3398417-1 04/04/19 01:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U		0.0519	1.00

L1083437-06 Original Sample (OS) • Duplicate (DUP)

(OS) L1083437-06 04/04/19 03:00 • (DUP) R3398417-3 04/04/19 03:15

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	17.4	17.2	1	0.789		20

L1083450-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1083450-08 04/04/19 08:58 • (DUP) R3398417-6 04/04/19 09:13

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chloride	24.6	24.5	1	0.446		20

Laboratory Control Sample (LCS)

(LCS) R3398417-2 04/04/19 01:41

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	40.0	39.6	99.1	90.0-110	

L1083437-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1083437-06 04/04/19 03:00 • (MS) R3398417-4 04/04/19 03:30 • (MSD) R3398417-5 04/04/19 03:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	17.4	65.6	65.4	96.5	96.1	1	80.0-120			0.310	20

L1083450-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1083450-08 04/04/19 08:58 • (MS) R3398417-7 04/04/19 09:28

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chloride	50.0	24.6	70.9	92.6	1	80.0-120	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
MQL	Method Quantitation Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
SDL	Sample Detection Limit.
U	Not detected at the Sample Detection Limit.
Unadj. MQL	Unadjusted Method Quantitation Limit.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

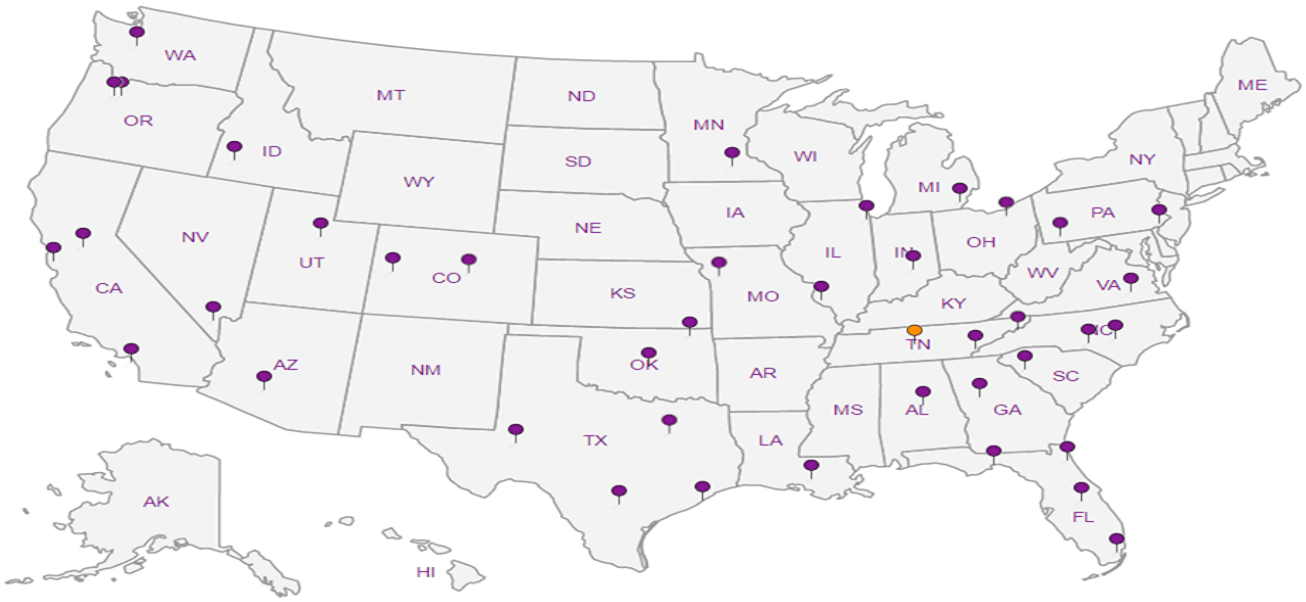
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Chain of Custody Page 1 of 4

Pace Analytical
National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# ~~1079660~~ H230 L1083368

Acctnum:
Template:
Prelogin:
TSR:
PB:
Shipped Via:

Company / Address	Billing Information	Pres Chk
TRC Solutions - Austin, TX	Accounts Payable 21 Griffin Rd N. Windsor, CT 06095	

Report to:	Email To:
Julie Speer	JSpeer@trcsolutions.com

Project Description:	City/State Collected:
Holly Frontier Waste Water	

Phone: / Fax:	Client Project #	Lab Project #
512-684-3170		TRC-Holly Frontier

Collected by (print):	Site/Facility ID #	P.O. #
Jared Stoffel		

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
X Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Chloride	GRO	DRO/ORO	Phenols	Hold	Remarks	Sample # (lab only)
WPL-06-2	Grab	Soil		3/14/19	1000	2	X			X			~~01~~
WPL-06-N					1002		X			X			~~02~~ -01
WPL-06-S					1004		X			X			~~03~~
WPL-06-W					1006		X			X			~~04~~
WPL-07-2					1015		X			X			~~05~~
WPL-07-E					1017		X			X			~~06~~
WPL-07-W					1019		X			X			~~07~~ -02
WPL-06-S					1245 BF	1	X			X	X		
WPL-07-S					1255	1	X			X	X		
WPL-06-N-2	↓	↓		↓	1300	1	X			X	X		

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Hold Samples as RADSCREEN: <0.5 mR/hr

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __UPS __FedEx __Courier SWA

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	3/15/19	1645	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: 4.1-0.1=4.0 °C Bottles Received: 13

Date: 3/16/19 Time: 0845 ~~BF~~ 0830-BF 1230

If preservation required by Login: Date/Time

03-0101

Condition: (NCF) / OK

3/18/19 N

Andy Vann

From: Chris McCord
Sent: Thursday, March 28, 2019 3:32 PM
To: Login; Sample Storage
Subject: L1079660 *TRCATX* relog

Please relog L1079660-02 and -07 for SPLPEXT3 CHLORIDE as WW. Please log as R5 due 4/4.

Thanks,

Christopher McCord
Project Manager
Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.3281 | Cell 615.504.3183
cmccord@pacenational.com|pacenational.com

ESC Lab Sciences is now Pace Analytical National Center for Testing & Innovation! Please make note of my new email address and website.

From: Speer, Julie [mailto:JSpeer@trcsolutions.com]
Sent: Thursday, March 28, 2019 1:05 PM
To: Chris McCord
Subject: L1079660 - request for addtl analyses

Chris,

We would like to analyze samples WPL-06-N and WPL-07-W (L1079660-02 and L1079660-07) for Chloride by SPLP. Is there enough sample volume available to complete?

Thanks!

Julie Speer, P.G.
Project Manager

TRC
505 E Huntland Dr, Suite 250, Austin,TX 78752
T 512.684.3148 | F 512.329.8750 | C 512.431.8184
LinkedIn | Twitter | Blog | TRCcompanies.com

Please note that our domain name and email addresses have changed

ATTACHMENT C

Summary of Potential Fresh Water Wells Location within 0.5-miles of the Release Location

Attachment C - Water Wells identified within 0.5-mile of December 29, 2018 Wastewater Release Location

OSE POD Locations

Water Rights Look Up

Find address or place

RA-10548

RA-05294: Domestic Well 2,600 feet

RA-06096: Domestic Well 1,600 feet

RA-04308: Domestic Well 1,600 feet

RA-05294

RA-01488

RA-01668

RA-06096

RA-04308

RA-12073-POD20

RA-01488: Irrigation Well, 2,300 feet
RA-03368: Domestic Well, 2,300 feet

E Richey

E Richey Ave

Artesia

RA-12073-POD19

RA-04922

RA-12073-POD18

Navajo Monitoring Well

RA-03720

RA-11872-POD1

RA-01488-S

RA-06550

RA-12073-POD17

Navajo Monitoring Wells

Haldeman Rd

Navajo Monitoring Well MW-27 (not plotted on NM OSE GIS Map Tool)

RA-02661: Domestic Well 640 feet

RA-02661

RA-12073-POD9

RA-12073-POD10

RA-10442

RA-12073-POD16

RA-10442: Domestic or Livestock Well 1,000 feet

RA-12073-POD12

RA-01331

RA-11688-POD1

RA-12073-POD13

RA-12073-POD15

RA-11926-POD10

RA-01414

RA-01414: Irrigation Well 1,800 feet

229

Esri, HERE, iPC | USDA FSA, DigitalGlobe, Ge

1:9027

600ft

-104.349 32.855 Degrees

December 29, 2018 Wastewater Release Location

0.5-mile Radius of December 29, 2018 Wastewater Release Location

Denotes well ID, Type, and Approximate Distance from Release Location for each Well Located within 0.5 Miles of Release

Groundwater Flow Direction

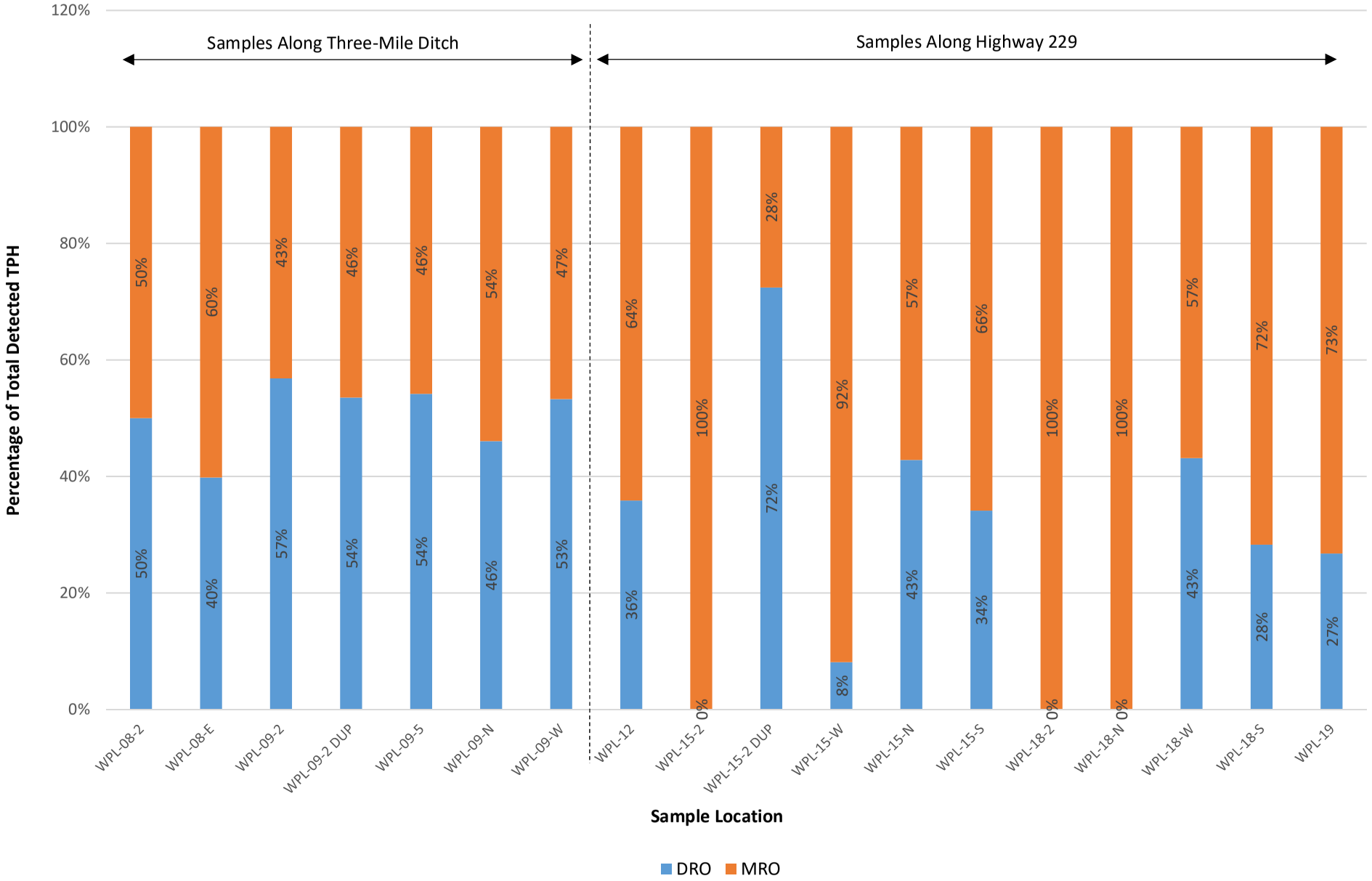
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ATTACHMENT D

Chart of Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) Percentages of Detected Total Petroleum Hydrocarbons (TPH) Concentrations in Soil Samples that Exceeded Closure Criteria

Attachment D: Chart of Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) Percentages of Detected Total Petroleum Hydrocarbons (TPH) Concentrations in Soil Samples that Exceeded Closure Criteria

Wastewater Effluent Pipeline Release - December 29, 2018

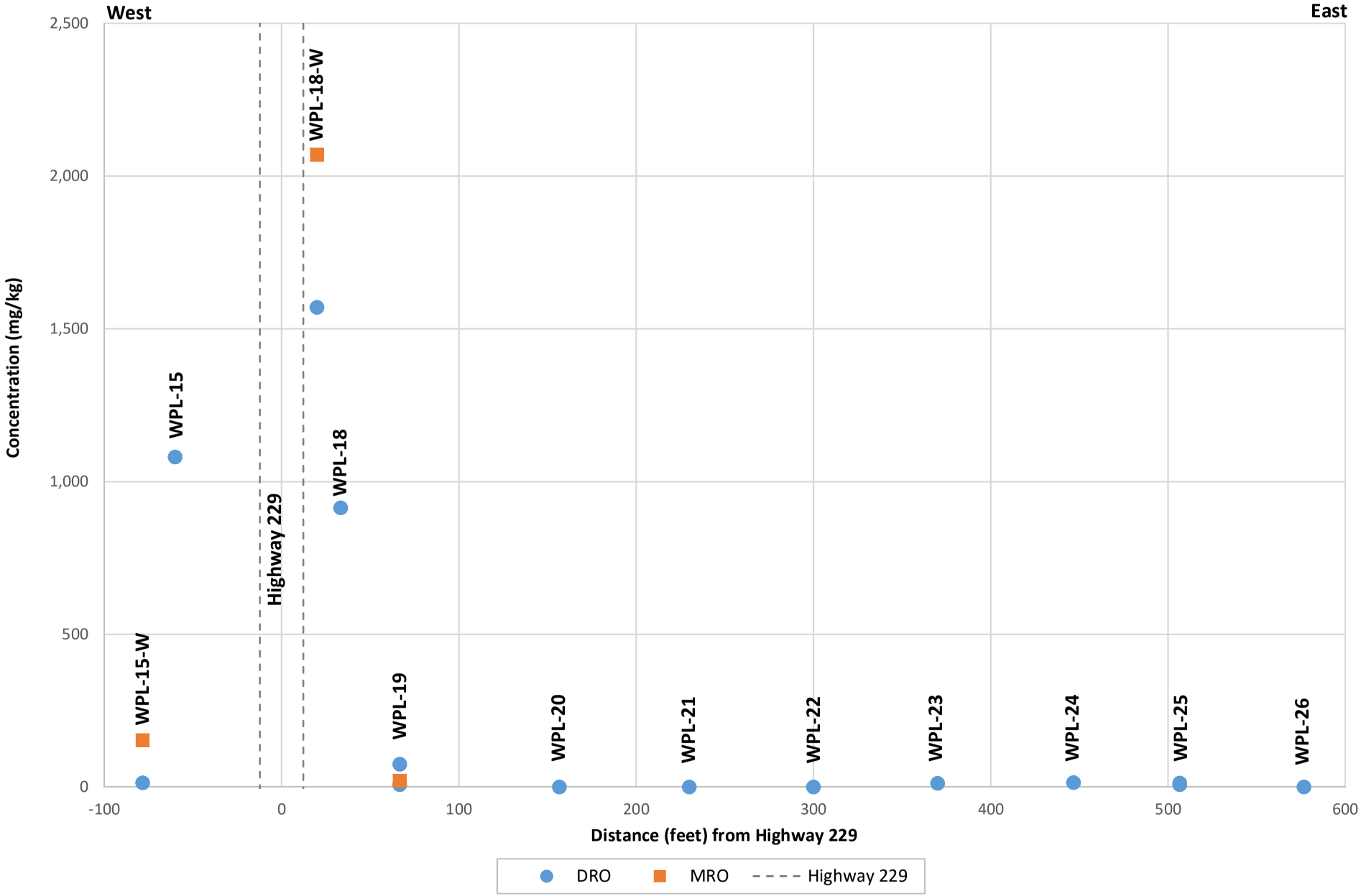


ATTACHMENT E

Plot of Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) Total Petroleum Hydrocarbons (TPH) Concentrations in Soil Samples along the Topographical Low within Eagle Creek

Attachment E: Plot of Diesel Range Organics (DRO) and Motor Oil Range Organics (MRO) Total Petroleum Hydrocarbons (TPH) Concentrations in Soil Samples along the Topographical Low within Eagle Creek

Wastewater Effluent Pipeline Release - December 29, 2018



Note: No MRO data available for samples WPL-15, WPL-18, and WPL-20 through WPL-26.