AP - 111

SANITARY LAGOON INVESTIGATION REPORT

2020

INVESTIGATION REPORT
Sanitary Lagoon

Marathon Petroleum Company LP

Gallup Refinery
Marathon Petroleum Company
Gallup, New Mexico

EPA ID# NMD000333211

February 2020

Scott Crouch, P.G
DiSorbo Consulting, LLC

DiSorbo
Environmental Consulting Firm

8501 North Mopac Expy | Suite 300 | Austin, TX 78759
512.693.4190 (P) | 512.279.3118 (F) | www.disorboconsult.com

Table of Contents

List of Acronyms i

Executive Summary i

Section 1 Introduction 1-1

Section 2 Background 2-1

Section 3 Scope of Activities 3-1

3.1 Soil Boring, Temporary Monitoring Well Installation and Sample Collection 3-1

3.1.1 Site Investigation 3-1

3.2 Collection and Management of Investigation Derived Waste 3-2

3.3 Surveys 3-2

Section 4 Field Investigation Results 4-1

4.1 Surface Conditions 4-1

4.2 Subsurface Conditions 4-2

4.2.1 Geology 4-2

4.2.2 Hydrogeology 4-3

4.3 Exploratory Drilling Investigations, Soil Sampling and Boring Abandonment 4-4

4.3.1 Soil Investigation 4-4

4.4 Monitor Well Construction and Groundwater Sampling 4-13

4.4.1 Groundwater Investigation 4-13

Section 5 Regulatory Criteria 5-1

Section 6 Site Impacts 6-1

6.1 Soil Analytical Results 6-1

6.2 Groundwater Analytical Results 6-3

6.3 General Groundwater Chemistry 6-6

Section 7 Conclusions and Recommendations 7-1

7.1 Conclusions 7-1

7.2 Recommendations 7-2

Section 8 References 8-1

Table of Contents (Continued)

List of Tables

Table 1 Vapor Screening Results

Table 2 Groundwater Field Measurements

Table 3 Soil Screening Levels

Table 4 Groundwater Screening Levels

Table 5 Soil Analytical Results Summary

Table 6 Groundwater Analytical Results Summary

List of Figures

Figure 1 Site Location Map

Figure 2 Site Map

Figure 3 Location of Soil Borings and Wells

Figure 4 Topographic Map

Figure 5 Geologic Map of New Mexico

Figure 6 Cross Section A-A'

Figure 7 Cross Section B-B'

Figure 8 November 2019 Potentiometric Surface Map

Figure 9 Manganese Soils Concentration Map

Figure 10 Diesel Range Organics Soils Concentration Map

Figure 11 Iron and Manganese Groundwater Concentration Map

Figure 12 Chloride and Sulfate Groundwater Concentration Map

Figure 13 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, and 1-Methylnaphthalene Groundwater Concentration Map

Figure 14 Benzene, MTBE, Trichloroethene, and Vinyl Chloride Groundwater Concentration Map

Figure 15 Gasoline Range and Diesel Range Organics Groundwater Concentration Map

Table of Contents (Continued)

Appendices

Appendix A Survey

Appendix B Field Methods

Appendix C Soil Boring/Well Logs

Appendix D Quality Assurance/Quality Control Review

Appendix E Analytical Data Reports

Appendix F Photographs of Soil Cores

List of Acronyms

API	American Petroleum Institute
AOCs	areas of concern
BTEX	benzene, toluene, ethylbenzene, and xylene
bgl	below ground level (bgl)
btoc	below top of casing
CFR	Code of Federal Regulations
DRO	diesel range organics
DAF	dilution/attenuation factor
EPA	Environmental Protection Agency
gpm	gallons per minute
HI	hazard index
HSA	hollow-stem auger
IDW	investigation derived waste
LPG	liquefied petroleum gas
LTU	Land Treatment Unit
MADEP	Massachusetts Department of Environmental Protection
MCL	maximum contaminant level
msl	mean sea level
MW	monitoring well
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
RCRA	Resource Conservation and Recovery Act
PID	photoionization detector
PVC	polyvinyl chloride
SPH	separate phase hydrocarbon
SVOC	semi-volatile organic compound
SWMUs	Solid Waste Management Units
TPH	total petroleum hydrocarbon
TVOC	total volatile organic content
TCLP	toxicity characteristic leaching procedure
USCS	unified soil classification system
VOC	volatile organic compound
WQCC	Water Quality Control Commission

Executive Summary

The Gallup Refinery, which is located 17 miles east of Gallup, New Mexico, has been in operation since the 1950s. A sanitary sewer lagoon is located in the northwest portion of the refinery. An Investigation Work Plan was prepared in June 2019 that proposed the collection of soil and groundwater samples to determine the current concentrations of constituents in the area of the sanitary sewer lagoon (DiSorbo, 2019). Thirty-three soil samples were collected from eight soil boring / temporary well locations within the lagoon. Fifteen groundwater samples were collected from the eight temporary wells and also from seven existing monitoring wells in the area of the lagoon. One of the permanent monitoring wells (MKTF-26) for which collection of a groundwater sample was scheduled contained separate-phase hydrocarbon (SPH) and therefore a groundwater sample was not collected.

The soil samples and groundwater samples collected from the new soil borings were analyzed for Skinner List metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), chloride, fluoride, sulfate, nitrite, nitrate, cyanide, iron, manganese, chemical oxygen demand (COD), total coliform, and E-coli bacteria and total petroleum hydrocarbons (TPH). In addition, the groundwater samples collected from existing nearby monitoring wells were analyzed for nitrite, nitrate, COD, biological oxygen demand (BOD), total coliform, and E-coli bacteria. The Investigation Work Plan also included the installation of up to 13 trench locations southeast of the lagoon along the pipeline that discharged to the lagoon, with collection of soil and possibly groundwater samples. Because a recent release of gasoline from a pipeline leak at the Truck Loading Rack is migrating along the area of the pipeline, the investigation of this area is temporarily postponed. This was agreed to by NMED via correspondence dated January 6, 2020. The Investigation Work Plan included the collection of a sample of the surface water in the Sanitary Lagoon, if present, however, no surface water was present during the field investigation.

Soil samples (excluding additional quality assurance samples) were collected for analysis of potential site-related constituents (e.g., volatile and semi-volatile organics, total petroleum hydrocarbons (TPH), and metals). groundwater samples (excluding additional quality assurance samples) were collected for analysis of potential site-related constituents (e.g., volatile and semi-volatile organics, TPH, metals, and inorganic/general water quality parameters).

Manganese and Diesel Range Organics are detected at concentrations in soils above the soil screening levels. Six soil samples [SL-1 (12-14'), SL-2 (14-16'), SL-4 (14-16'), SL-6 (12-14'), SL-7 (10-12') and SL-8 (12-14')] have manganese concentrations ranging from 480 mg/kg to 750 mg/kg, which exceed the non-residential screening level of 464 mg/kg. All manganese soil sample results are less than the residential soil screening level of 10,500 mg/kg. Diesel Range Organics (DRO) are detected at concentrations above the residential soil screening level of 1,000 mg/kg in three soil samples [SL-2 (0-0.5'), SL-3 (0-0.5') and SL-8 (0-0.5')] at concentrations of 2,600 mg/kg, 1,300 mg/kg, and 2,600 mg/kg, respectively. None of the DRO concentrations exceed the non-residential screening level of 3,800 mg/kg.

Iron was detected above the groundwater screening level in samples analyzed for total (nine exceedances at SL-1, SL-3, SL-4, SL-5, MKTF-25, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1) and dissolved analyses (one exceedance at OAPIS-1). The total iron analyses range from 660 ug/l to 10,000 ug/l in comparison to a screening level of 1,000 ug/l. The dissolved analyses range from 13 ug/l to 3,200 ug/l vs. a screening level of 1,000 ug/l.

Manganese was detected above the screening level (200 ug/l) in 13 total analyses in groundwater samples SL-1, SL-2, SL-3, SL-4, SL-5, SL-6, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-29, MKTF-30, and OAPIS-1 and 12 dissolved analyses in samples SL-1, SL-2, SL-3, SL-4, SL-5, SL-6, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-29, and OAPIS-1. The total groundwater analyses results range from 56 ug/l to 15,000 ug/l. The dissolved manganese concentrations range from 1.3 ug/l to 17,000 ug/l. Chloride was detected above the screening level (250,000 ug/l) in 10 of the groundwater samples (SL-1, SL-5, SL-7, MKTF-24, MKTF-25, MKTF-29, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1). The detected results range from 110,000 ug/l to 2,800,000 ug/l.

There are eight detections of 1,1-dichloroethane above the screening level (25 ug/l) that occur in groundwater samples SL-1, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-30, and MKTF-31. The detected results range from 0.56 to 120 ug/l. There are seven detections of 1,1-dichloroethene above the screening level (7 ug/l) that occur in groundwater samples SL-1, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, and MKTF-31. The detected results range from 0.74 to 65 ug/l. There are four detections of 1,2-dichloroethane above the screening level (5 ug/l) that occur in groundwater samples SL-1, MKTF-24, MKTF-25, and MKTF-31. The detected results range from 0.44 to 21 ug/l. There is one detection of 1-methylnaphthalene at 49 ug/l that is above the screening level (11.38), which occurs in sample OAPIS-1. The detected results range from 0.55 to 49 ug/l.

There are seven detections of benzene above the screening level (5 ug/l) that occur in groundwater samples SL-1, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, and OAPIS-1. The detected results range from 0.17 to 5,000 ug/l. There are five detections of methyl tert-butyl ether (MTBE) above the screening level (100 ug/l) that occur in groundwater samples SL-5, SL-8, MKTF-24, MKTF-25, and OAPIS-1. The detected results range from 0.17 to 5,000 ug/l. There are two detections of trichloroethene above the screening level (5 ug/l) that occur in samples SL-5 and MKTF-25 at concentrations of 8.7 ug/l and 11 ug/l, respectively. The detected groundwater results range from 2.3 to 11 ug/l. There are four detections of vinyl chloride above the screening level (2 ug/l) that occur in groundwater samples SL-5, SL-7, MKTF-24, and MKTF-25. The detected results range from 0.46 to 37 ug/l.

Gasoline Range Organics were detected above the groundwater screening level (10.1 ug/l) in 12 groundwater samples, including SL-1, SL-2, SL-3, SL-4, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-30, MKTF-31, and OAPIS-1. The detected results range from 25 to 17,000 ug/l. Diesel Range Organics were detected above the screening level (85.8 ug/l) in one groundwater sample (OAPIS-1) at a concentration of 1,400 ug/l.

Section 1
Introduction

The Gallup Refinery is located approximately 17 miles east of Gallup, New Mexico along the north side of Interstate Highway I-40 in McKinley County. The physical address is I-40, Exit #39 Jamestown, New Mexico 87347. The Gallup Refinery property covers approximately 810 acres. Figure 1 presents the refinery location and the regional vicinity, which is characterized as high desert plain comprised primarily of public lands used for grazing by cattle and sheep.

The Gallup Refinery generally processes crude oil from the Four Corners area transported to the facility by pipeline or tanker truck. Various process units are operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, alkylation, isomerization, sulfur recovery, merox treater, and hydrotreating. Current and past operations have produced gasoline, diesel fuels, jet fuels, kerosene, propane, butane, and residual fuel.

The area of investigation that is the subject of this report is shown on Figure 2. The purpose of the site investigation is to determine the current concentrations of constituents in soil/sediments and groundwater in the area of the Sanitary Lagoon.

Section 2 presents background information for the Sanitary Lagoon, including a review of historical waste management activities to help identity the types of waste handled, sources of releases, and previously known impacts to the environment. Section 3 describes the scope of work completed during the site investigation, including completion of soil borings, installation of temporary monitoring wells, and sample collection. Section 4 of the report explains the results of the field investigation, including the general surface and subsurface conditions and detailed site-specific information acquired during subsurface investigations. Section 5 explains the regulatory standards that are used for comparison to the analytical results and Section 6 presents the analytical results of soil and groundwater samples. The results of these analyses are compared to applicable state or federal screening levels. Section 7 summarizes the results, provides an evaluation of the potential impacts and provides recommendations for any future actions.

Section 2
Background

This section presents background information for the area near the Sanitary Lagoon, including a review of historical waste management activities to identity the following:

- Type and characteristics of waste and contaminants handled in the lagoon;
- Known and possible sources of impacts;
- History of releases; and
- Known extent of impacts prior to the current investigation.

The Sanitary Lagoon is a two-cell lagoon that was installed when the facility opened in 1957. The two cells were separated by an earthen berm (Figure 4). In the past both cells of the lagoon were used to store wastewater. Currently, the western cell is dry and used for storage and the eastern lagoon, which held raw sewage and other discharge, did not have free water present during the investigation conducted in November 2019. It is noted that the pipeline that discharged to the lagoon was cut in two and the up-stream portion plugged with concrete on October 11 ,2018. The location where the pipeline was cut and plugged is shown on Figure 2. The only water entering the lagoon at this time is rainfall. The eastern cell is approximately 145 feet x 115 feet. Based on reviews of sewer pipeline maps and recent dye-trace tests, the lab sanitary facilities, change house, warehouse, and the truck rack drivers lounge have sanitary sewer lines that discharged to the Sanitary Lagoon.

A portion of the pipeline to the south of the lagoon, which did transmit sanitary flows into the lagoon, was excavated between January 2014 and March 2016. The excavation extends for approximately 130 feet along a section north the dirt road that transverses the area and for another 50 on the south side of the road (Figure 2). It is believed the pipeline was excavated with the intent to possibly replace this section of pipeline, but the project was never completed. The pipeline was cut and plugged at the south end of the excavation in October 2018, thus terminating flow into the lagoon.

Section 3
Scope of Activities

3.1 Soil Boring, Temporary Monitoring Well Installation and Sample Collection

Pursuant to the approved Investigation Work Plan, an investigation of soils and groundwater was conducted to determine the current concentrations of constituents of concern in soils/sediment within the Sanitary Lagoon and groundwater beneath and near the Lagoon. To accomplish this objective, soil borings and temporary monitoring wells were installed (Figure 3).

3.1.1 Site Investigation

Eight soil borings (SL-1 through SL-8) were drilled using the hollow-stem auger method to depths of up to 16 feet below ground level (bgl). Temporary wells were installed in each of the eight borings. Groundwater samples were collected from each of the eight temporary wells. The groundwater samples were analyzed for VOCs, SVOCs, TPH, Skinner List metals (including hexavalent chromium), cyanide, iron, manganese, chloride, fluoride, nitrate, nitrite, sulfate, COD, total coliform, and E. coli. BOD was not reported for the groundwater samples collected from the temporary well completions due to a laboratory error. The groundwater samples collected at existing monitoring wells (MKTF-24, MKTF-25, MKTF-26, MKTF-29, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1) as part of this field effort were analyzed for nitrite, nitrate, COD, BOD, total coliform, and E. coli bacteria. The other chemical analyses from the permanent monitoring well samples that are summarized in Table 6 were completed as part of the fourth quarter 2019 sampling event conducted under the *Facility-Wide Ground Water Monitoring Work Plan*.

Discrete soil samples were proposed in the Investigation Work Plan to be retained for laboratory analysis from within the following intervals at each of the soil borings:

- 0.0-0.5 feet;
- 2.0-2.5 feet;
- >2.5 feet at the interval in each soil boring with the greatest apparent degree of contamination, based on field observations and field screening;

- 0.5 feet interval at the top of saturation (applicable only to those borings that reach saturation);
- From the bottom of each borehole; and
- Any additional intervals as determined based on field screening results.

The objectives were met at each soil boring with discussions below detailing the exact sample collection intervals at each soil boring. The soil samples were analyzed for VOCs, SVOCs, TPH, Skinner List metals (including hexavalent chromium), iron, manganese, cyanide, chloride, fluoride, sulfate, nitrate, nitrite, fecal coliform, E. coli, and total coliform.

The following list provides a summary of the soil borings advanced using hollow stem augers:

- SL-1; advanced to 14 feet bgl; temporary well installed;
- SL-2; advanced to 16 feet bgl; temporary well installed;
- SL-3; advanced to 16 feet bgl; temporary well installed;
- SL-4; advanced to 16 feet bgl; temporary well installed;
- SL-5; advanced to 14 feet bgl; temporary well installed;
- SL-6; advanced to 14 feet bgl; temporary well installed;
- SL-7; advanced to 12 feet bgl; temporary well installed; and
- SL-8; advanced to 14 feet bgl; temporary well installed.

3.2 Collection and Management of Investigation Derived Waste

Drill cuttings, excess sample material and other investigation derived waste (IDW) associated with soil borings were placed in containers. All drill cuttings generated during the investigation were collected and put into 55-gallon drums. The drums are currently on-site pending finalization of waste characterization before being sent off-site for disposal. All purge water and decontamination water were disposed in the refinery wastewater system upstream of the API Separator.

3.3 Surveys

A global positioning system receiver was used to record the coordinates of each soil boring. These coordinates were recorded on the field boring logs. Surveys of each location and the land surface were completed by a registered land surveyor. The survey is included in Appendix A (page 6 of 9).

Section 4
Field Investigation Results

This section provides a summary of the surface and subsurface conditions at the refinery, including the area near the Sanitary Lagoon. A discussion is included on the installation of soil borings, field screening of soils, and collection of soil samples for analysis. This is followed by a description of the installation of temporary well completions and the collection of groundwater samples from temporary wells and existing permanent monitoring wells.

4.1 Surface Conditions

A topographic map of the area near the Sanitary Lagoon No. 13 is included as Figure 4. Site topographic features include high ground in the southeast gradually decreasing to a lowland fluvial plain to the northwest. Elevations on the refinery property range from 6,860 feet to 7,040 feet. The area of the site near Sanitary Lagoon is at an approximate elevation of 6,910 feet above mean sea level (msl).

The soils in the vicinity of Sanitary Lagoon are identified as the Simitarq-Celavar soils, which are well drained with a conservative permeability of 0.20 inches/hour and minimal salinity. Simitarq soils have nearly neutral pH values ranging from 7.2 to 7.4 standard units with salinity values as low as approximately 0 mmhos/cm (nonsaline). The Celavar soils have a salinity maximum of 2 mmhos/cm. The parent material is described as stream alluvium derived from gypsiferous shale (USDA, 2005).

Regional surface water features include the refinery evaporation ponds and a number of small ponds (one cattle water pond and two small unnamed spring fed ponds). The site is located in the Puerco River Valley, north of the Zuni Uplift with overland flows directed northward to the tributaries of the Puerco River. The Puerco River continues to the west to the confluence with the Little Colorado River. The South Fork of the Puerco River is intermittent and retains flow only during and immediately following precipitation events.

4.2 Subsurface Conditions

No underground pipelines were detected during clearance of utilities in the area of the borings at the Sanitary Lagoon. A known underground pipeline that discharged into the Lagoon from the south is shown on Figure 2.

4.2.1 Geology

The shallow subsurface soils consist of fluvial and alluvial deposits comprised of clay and silt with minor inter-bedded sand layers. The diverse properties and complex, irregular stratigraphy of the surface soils across the site cause a wide range of hydraulic conductivity ranging from less than 10^{-2} cm/sec for gravely sands immediately overlying the Petrified Forest Formation to 10^{-8} cm/sec in the clay soils located near the surface (Western Refining, 2009). Generally, shallow groundwater at the refinery follows the upper contact of the Chinle Group with prevailing flow from the southeast to the northwest, with some flow potentially to the northeast on the northeastern portion of the refinery property.

The Quaternary alluvium, which occurs at the land surface in the area of the refinery is mapped regionally as a narrow band trending west-northwest and running just north of I-40 (Figure 5). The Quaternary alluvium is thought to be the parent material of the Rehobeth soils discussed above in Section 4.1. Cross sections of the shallow subsurface in the immediate vicinity of the Sanitary Lagoon are included as Figures 6 and 7. Figure 3 shows the location of the cross sections. As shown on the cross sections, the predominant lithology is clay with sandy clay/clayey sand layers.

Subcropping beneath the Quaternary alluvium is the Triassic Chinle Group (Figure 5). The stratigraphy of the Chinle Group was described in detail for the nearby Fort Wingate quadrangle by Lucas *et al.*, 1997. The Painted Desert Member of the Petrified Forest Formation is the uppermost member of the Chinle Group present in the area of the refinery. The Painted Desert Member is described as reddish-brown and grayish red mudstone with minor beds of resistant, laminated or crossbedded, litharenite. This is consistent with the bedrock encountered at the refinery. Beneath the Painted Desert Member is the Sonsela Member, which is described by Lucas *et al.* (1997) as gray to yellowish-brown, fine-grained to conglomeratic, crossbedded sandstone. The base of the Sonsela Member is recognized as a basin wide unconformity, which was termed the Tr-4 unconformity (Heckert and Lucas, 1996). The Blue Mesa Member, which underlies the Sonsela Member, is the lowest member of the Petrified Forest Formation. The Blue Mesa Member is described as mostly purple and greenish-gray mudstone.

4.2.2 Hydrogeology

Figure 8 presents the potentiometric surface measured during field work activities conducted in the month of November 2019. The groundwater flow direction in the area of Sanitary Lagoon is to the northwest.

The diverse properties and complex, irregular stratigraphy of the Quaternary alluvium across the refinery cause a wide range of hydraulic conductivity ranging from less than 10^{-2} cm/sec for gravel like sands immediately overlying the Painted Desert Member to 10^{-8} cm/sec in the clay soils located near the surface (Western Refining, 2009). Permeability tests performed on the Quaternary alluvium beneath the nearby Land Treatment Unit (LTU) indicated an average permeability of 1.9E-05 cm/sec. Permeability tests performed on soils in the area of the potential firewater pond indicated an average permeability of 1.1E-07 cm/sec.

As described above, the bedrock (i.e., Petrified Forest Formation) is mainly composed of low permeability materials (e.g., mudstone) with the exception of the Sonsela Member and some thinner sandstones within the overlying Painted Desert Member. Yield tests, including slug tests and pumping tests have been performed at the refinery to estimate the hydraulic conductivity of the Painted Desert Member. A slug test performed on July 3, 1984 in well OW-4 indicated a hydraulic conductivity of 4.0E-7 cm/sec. A pump test was performed in well OW-24 on February 20, 1985 and it yielded a hydraulic conductivity of 2.5E-7 cm/sec. The Painted Desert Member appears to be a competent aquitard capable of reducing the potential for downward migration of contaminants from groundwater that may occur within the overlying Quaternary alluvium.

The Sonsela Member is identified as the uppermost aquifer for RCRA monitoring purposes at the LTU because the overlying groundwater bearing units are not capable of supplying sufficient quantities of groundwater to meet the definitions of an aquifer. Wells completed in a thinner permeable sandstone layer within the Painted Desert Member are also monitored near the LTU as a potential early warning network. The Sonsela's highest point occurs southeast of the site and slopes downward to the northwest as it passes under the refinery. The Sonsela Member forms a water-bearing reservoir with artesian conditions throughout the central and western portions of the refinery property (Western, 2009). Aquifer test of the Sonsela Member conducted northeast of Prewitt indicated a transmissivity of greater than 100 ft^2/day (Stone and others, 1983). Yield tests conducted at the site have shown a much lower hydraulic conductivity of 0.34 ft/day (1.2E-04 cm/sec).

4.3 Exploratory Drilling Investigations, Soil Sampling and Boring Abandonment

This subsection provides a detailed description of subsurface investigations to delineate impacts to soils and groundwater in the area of Sanitary Lagoon. This includes soil field screening results, soil sampling intervals and methods for detection of subsurface impacts in soils.

A description of the field screening and soil sampling procedures are presented in Appendix B – Field Methods. Copies of the boring/well logs are provided in Appendix C. In addition to being included on the soil boring logs, the soil vapor (i.e., headspace) screening results are summarized in Table 1. The locations of the soil borings/wells appear on Figure 3.

4.3.1 Soil Investigation

Eight soil borings (SL-1 through SL-8) were advanced using the hollow-stem auger (HSA) method. A hand auger was used to clear each drilling location to a depth of 5 feet. Soil samples for logging, screening and sample collection were collected from the auger bucket from 0 to 5 feet. After each location was cleared, the CME 55 track drilling rig was set up at the location. Sample collection was then accomplished using the HSA drilling method and split spoon samplers. Temporary groundwater monitoring wells were installed in these eight borings. The drilling equipment was decontaminated between each borehole, as described in Appendix B. The soil boring logs describe the subsurface lithology, the presence of saturation, the field screening results, soil sample collection intervals, and any temporary well construction details. Soil samples that were collected with the split spoon sampler were photographed. Electronic copies of these photographs are included in Appendix F. The installation of soil borings and collection of soil samples are discussed below in numerical order.

<u>SL-1</u>

On October 28, 2019 the CME 55 track drilling rig was set up on location SL-1. SL-1 is located in the southeast corner of the Sanitary Lagoon near the outfall. The ground surface at SL-1 is approximately 2 feet above base of the Sanitary Lagoon. Sample collection from 0 – 5 feet below ground level (bgl) was accomplished using a decontaminated hand auger. Sample collection from 5 to 14 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated between each sample. Four soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 1.5 ppm, no odor, black discoloration, required interval;

- 2 feet bgl to 2.5 feet bgl: PID reading - 1341 ppm, hydrocarbon odor, black discoloration, required interval and the interval with the most apparent degree of contamination based on the PID reading;
- 6 feet bgl to 8 feet bgl: PID reading – 8.6 ppm, no odor, interval immediately above saturation; and
- 12 feet bgl to 14 feet bgl: PID reading – 1.8 ppm, no odor, bottom of the borehole.

The lithology encountered consisted of the following:

- Clayey Silt: 0 – 0.5 feet bgl (low plasticity, soft, damp, brown, no odor, black discoloration);
- Silty Clay: 0.5 feet bgl – 4 feet bgl (low plasticity, soft, damp, brown, no odor, damper than above, becomes grayish brown, moist, hydrocarbon odor, black discoloration, trace sand/sand lenses);
- Silty Clay: 4 feet bgl – 5 feet bgl (low plasticity, firm, damp, brown, no odor);
- Sandy Silty Clay: 5 feet bgl – 10 feet bgl (low plasticity, firm to soft, damp, brown, no odor, fine grain sand in lenses, increase in sand content, becomes damp to moist, saturated clayey sand/sand at 9 feet bgl, more clayey at base, no odor);
- Silty Sand: 10 feet bgl – 10.75 feet bgl (fine to medium grain, loose, saturated, brown, no odor);
- Clay/Silty Clay: 10.75 feet bgl – 12 feet bgl (moderate to low plasticity, firm, damp, brown, no odor, trace sand at top, bottom becomes drier and denser/crumbly); and
- Mudstone: 12 feet bgl – 14 feet bgl (very dense, dry to damp, brown, no odor).

The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 1.5 feet bgl to 11.5 feet bgl. Groundwater samples were collected as discussed below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-2

On October 29, 2019 the CME 55 track drilling rig was set up on location SL-2. SL-2 is located on the eastern portion of the Sanitary Lagoon. Sample collection from 0 – 5 feet bgl was accomplished using a decontaminated hand auger. Sample collection from 5 to 16 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated

between each sample. Five soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 0.4 ppm, no odor, required interval;
- 2 feet bgl to 2.5 feet bgl: PID reading – 23.8 ppm, required interval and the interval with the most apparent degree of contamination based on the PID reading;
- 2.5 feet bgl to 4 feet bgl: PID reading – 18.1 ppm, no odor, interval immediately above saturation;
- 6 feet bgl to 8 feet bgl: PID reading – 5.9 ppm, no odor, interval immediately above saturation;
- 14 feet bgl to 16 feet bgl: PID reading – 3.0 ppm, no odor, bottom of the borehole.

The lithology encountered consisted of the following:

- Silt: 0 – 0.5 feet bgl (loose, dry to damp, brown, no odor, plant debris);
- Clayey Silt: 0.5 feet bgl – 2 feet bgl (loose, dry to damp, brown, no odor);
- Silty Clay: 2 feet bgl – 2.5 feet bgl (low plasticity, soft, damp, brown, increase in moisture);
- Clayey Sand: 2.5 feet bgl – 5.5 feet bgl (very fine grain, compact, moist, no odor, brown, becomes saturated at 4 feet bgl, odor at 4 feet bgl);
- Clay: 5.5 feet bgl – 6.5 feet bgl (high plasticity, firm, damp, brown, no odor);
- Clayey Sand/Sandy Clay: 6.5 feet bgl – 8 feet bgl (low plasticity, soft, damp to moist in sand seams, brown, no odor);
- Clayey Sand: 8 feet bgl – 10 feet bgl (medium to coarse grain with clay lenses, saturated, brown, no odor);
- Sand: 10 feet bgl – 10.75 feet bgl (medium to coarse grain, loose, brown, saturated, no odor);
- Clay: 10.75 feet bgl – 12 feet bgl (high plasticity, very stiff, damp, brown, no odor, calcareous nodules);
- Clayey Sand: 12 feet bgl – 13.5 feet bgl (medium to coarse grain, compact, moist to saturated, brown, no odor); and
- Mudstone: 13.5 feet bgl – 16 feet bgl (very dense, dry to damp, brown, no odor).

The sampling was terminated at 16 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened

interval ranging from 2 feet bgl to 12 feet bgl. Groundwater samples were collected as discussed below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-3

On October 29, 2019 the CME 55 track drilling rig was set up on location SL-3. SL-3 is located in the northeast corner of the Sanitary Lagoon. Sample collection from 0 – 5 feet bgl was accomplished using a decontaminated hand auger. Sample collection from 5 to 16 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated between each sample. Four soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 0.6 ppm, no odor, required interval;
- 2 feet bgl to 2.5 feet bgl: PID reading – 1.5 ppm, no odor, required interval;
- 6 feet bgl to 8 feet bgl: PID reading – 5.5 ppm, no odor, interval immediately above saturation and the interval with the most apparent degree of contamination based on the PID reading; and
- 14 feet bgl to 16 feet bgl: PID reading – 4.8 ppm, no odor, bottom of the borehole.

The lithology encountered consisted of the following:

- Silt/Clayey Silt: 0 – 2 feet bgl (loose, dry to damp, dark brown to brown, no odor);
- Silty Sand/Sandy Silt: 2 feet bgl – 4 feet bgl (very fine grain, compact, damp, brown, no odor, moisture increases with depth);
- Silty Sand: 4 feet bgl – 5 feet bgl (very fine grain, compact, moist to saturated at 5 feet bgl, brown, no odor);
- No Recovery: 5 feet bgl – 6 feet bgl;
- Sandy Clay: 6 feet bgl – 8 feet bgl (moderate plasticity, firm, damp, brown, no odor, moist sand in seams, saturated at base);
- Clayey Sand: 8 feet bgl – 8.75 feet bgl (fine grain, compact, brown, saturated, no odor);
- Clay: 8.75 feet bgl – 13 feet bgl (high plasticity, very stiff, damp, brown, no odor, calcareous nodules, becomes soft with trace sand at 12 feet bgl, saturated clayey sand lense at 13 feet bgl); and
- Mudstone: 13 feet bgl – 16 feet bgl (very dense, dry to damp, brown, no odor).

The sampling was terminated at 16 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl. Groundwater samples were collected as discussed below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-4

On October 30, 2019 the CME 55 track drilling rig was set up on location SL-4. SL-4 is located in the northern portion of the Sanitary Lagoon. Sample collection from 0 – 5 feet bgl was accomplished using a decontaminated hand auger. Sample collection from 5 to 16 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated between each sample. Four soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 0.2 ppm, no odor, required interval;
- 2 feet bgl to 2.5 feet bgl: PID reading – 0.2 ppm, no odor, required interval;
- 6 feet bgl to 8 feet bgl: PID reading – 1.4 ppm, no odor, interval immediately above saturation; and
- 14 feet bgl to 16 feet bgl: PID reading – 0.8 ppm, no odor, bottom of the borehole. There was no indication of any impacts based on field screening, thus no sample was collected to represent the "most apparent degree of contamination."

The lithology encountered consisted of the following:

- Silt: 0 – 1 feet bgl (loose, dry, brown, no odor);
- Silty Sand: 1 feet bgl – 5 feet bgl (very fine grain, compact, damp, brown, no odor, moisture increases with depth, moist to saturated from 4 feet bgl to 5 feet bgl);
- Sandy Clay: 5 feet bgl – 8 feet bgl (moderate plasticity, firm, damp, brown, no odor, moist sand in seams, high plasticity clay with saturated sand at the base);
- Clayey Sand: 8 feet bgl – 9 feet bgl (fine to medium grain, loose, saturated, brown, no odor);
- Clay: 9 feet bgl – 13 feet bgl (high plasticity, very stiff, damp, brown, no odor); and
- Mudstone: 13 feet bgl – 16 feet bgl (very dense, dry, brown, no odor).

The sampling was terminated at 16 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl. Groundwater samples were collected as discussed below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-5

On October 30, 2019 the CME 55 track drilling rig was set up on location SL-5. SL-5 is located in the northwest corner of the Sanitary Lagoon. Sample collection from 0 – 5 feet bgl was accomplished using a decontaminated hand auger. Sample collection from 5 to 14 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated between each sample. Four soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 1.3 ppm, no odor, required interval;
- 2 feet bgl to 2.5 feet bgl: PID reading – 1.6 ppm, no odor, required interval;
- 6 feet bgl to 8 feet bgl: PID reading – 58 ppm, no odor, interval immediately above saturation and the interval with the most apparent degree of contamination based on the PID reading; and
- 12 feet bgl to 14 feet bgl: PID reading – 0.3 ppm, no odor, bottom of the borehole.

The lithology encountered consisted of the following:

- Sandy Clay: 0 – 4 feet bgl (low plasticity, firm, damp, brown, no odor, rusty brown spots, becomes moist at base);
- Clayey Sand: 4 feet bgl – 6 feet bgl (fine to medium grain, compact, brown, black and gray sand grains, very moist to saturated);
- Sandy Clay: 6 feet bgl – 8 feet bgl (moderate plasticity, firm, damp, brown, no odor, moist sand in seams, moist at base);
- Clay: 8 feet bgl – 10 feet bgl (high plasticity, very stiff, damp, brown, no odor); and
- Mudstone: 10 feet bgl – 14 feet bgl (dense, dry, brown, no odor).

The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened

interval ranging from 3 feet bgl to 13 feet bgl. Groundwater samples were collected as discussed below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-6

On October 31, 2019 the CME 55 track drilling rig was set up on location SL-6. SL-6 is located in the northwest portion of the Sanitary Lagoon. Sample collection from 0 – 5 feet bgl was accomplished using a decontaminated hand auger. Sample collection from 5 to 14 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated between each sample. Four soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 1.9 ppm, no odor, required interval;
- 2 feet bgl to 2.5 feet bgl: PID reading – 2.1 ppm, no odor, required interval;
- 6 feet bgl to 8 feet bgl: PID reading – 3.2 ppm, no odor, interval immediately above saturation and the interval with the most apparent degree of contamination based on the low PID reading; and
- 12 feet bgl to 14 feet bgl: PID reading – 1.1 ppm, no odor, bottom of the borehole.

The lithology encountered consisted of the following:

- Sandy Clay: 0 – 4 feet bgl (low plasticity, firm, damp, brown, no odor, becomes moist at base);
- Clayey Sand: 4 feet bgl – 8.5 feet bgl (fine to medium grain, compact, brown, moist to saturated, no odor);
- Clay: 8.5 feet bgl – 12.25 feet bgl (high plasticity, stiff, damp, brown, no odor, gravel present, very stiff from 10 feet bgl to 12 feet bgl); and
- Mudstone – 12.25 feet bgl to 14 feet bgl (very dense, dry, brown, no odor).

The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl. Groundwater samples were collected as discussed below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-7

On November 4, 2019 the CME 55 track drilling rig was set up on location SL-7. SL-7 is located in the southwest corner of the Sanitary Lagoon. Sample collection from 0 – 5 feet bgl was accomplished using a decontaminated hand auger. Sample collection from 5 to 12 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated between each sample. Four soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 3.8 ppm, no odor, required interval;
- 2 feet bgl to 2.5 feet bgl: PID reading – 7.8 ppm, odor, black, required interval;
- 2.5 feet bgl to 4 feet bgl: PID reading – 46.1 ppm, interval immediately above saturation and the interval with the most apparent degree of contamination based on the PID reading; and
- 10 feet bgl to 12 feet bgl: PID reading – 3.3 ppm, no odor, bottom of the borehole.

The lithology encountered consisted of the following:

- Silty Clay: 0 – 0.5 feet bgl (low plasticity, soft, damp, light brown with rusty brown discoloration, no odor);
- Silty Clay: 0.5 feet bgl to 4 feet bgl (low plasticity, soft, damp, brown, faint odor, becomes black with an odor, damp to moist from 2.5 feet bgl to 4 feet bgl);
- Silty Sand: 4 feet bgl to 5.75 feet bgl (fine grain, loose, brown, saturated, odor, becomes fine to medium grain);
- Silty Clay: 5.75 feet bgl to 6 feet bgl (low plasticity, soft, damp, brown, faint odor);
- Sandy Clay/Clayey Sand: 6 feet bgl to 8 feet bgl (fine to medium grain, compact, moist to saturated in sand seams, brown, no odor);
- Sandy Clay: 8 feet bgl to 9 feet bgl (fine to medium grain, compact, moist, brown, no odor);
- Clay: 9 feet bgl – 10 feet bgl (high plasticity, firm, damp, brown, no odor, mudstone at base, dense); and
- Mudstone – 10 feet bgl to 12 feet bgl (very dense, dry, brown, no odor).

The sampling was terminated at 12 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 2 feet bgl to 12 feet bgl. Groundwater samples were collected as discussed

below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-8

On November 4, 2019 the CME 55 track drilling rig was set up on location SL-8. SL-8 is located in the southern portion of the Sanitary Lagoon. Sample collection from 0 – 5 feet bgl was accomplished using a decontaminated hand auger. Sample collection from 5 to 14 feet was accomplished using the HSA drilling method and split spoon samplers. The split spoon samplers were decontaminated between each sample. Four soil samples were collected for laboratory analysis from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 12.7 ppm, odor, required interval;
- 2 feet bgl to 2.5 feet bgl: PID reading – 8.3 ppm, odor, dark brown to black, required interval;
- 2.5 feet bgl to 4 feet bgl: PID reading – 6.1 ppm, black to dark brown, interval immediately above saturation and the interval with the most apparent degree of contamination based on the visual appearance of the soil core; and
- 10 feet bgl to 12 feet bgl: PID reading – 4.5 ppm, no odor, bottom of the borehole.

The lithology encountered consisted of the following:

- Silty Clay: 0 – 4 feet bgl (low plasticity, soft, damp, light brown, odor, becomes dark brown to black from 2 feet bgl to 2.5 feet bgl, becomes black to dark brown from 2.5 feet bgl to 4 feet bgl);
- Sandy Clay: 4 feet bgl to 5 feet bgl (low plasticity, soft, moist to saturated, brown, odor);
- Clayey Sand: 5 feet bgl to 9 feet bgl (fine to medium grain sand in lenses, moist to saturated, faint odor, dark brown to black, becomes brown with no odor at 6 feet bgl);
- Clay: 9 feet bgl – 11 feet bgl (high plasticity, very stiff, damp, brown, no odor); and
- Mudstone – 11 feet bgl to 14 feet bgl (dense to very dense, dry, brown, no odor).

The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 2 feet bgl to 12 feet bgl. Groundwater samples were collected as discussed

below in Section 4.4.1. On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

4.4 Monitor Well Construction and Groundwater Sampling

Groundwater samples were collected from eight temporary well completions (SL-1 through SL-8) located within the footprint of the Sanitary Lagoon and from seven previously existing permanent wells (MKTF-24, MKTF-25, MKTF-29, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1) in November 2019. The existing permanent monitoring wells generally surround the Sanitary Lagoon, but do extend as far as 600 feet away from the Sanitary Lagoon. The following list provides a brief summary of the well development and groundwater sample collection activities:

- SL-1; developed and sampled; yielded enough water for a full analytical suite;
- SL-2; developed and sampled; yielded enough water for a full analytical suite;
- SL-3; developed and sampled; yielded enough water for a full analytical suite;
- SL-4; developed and sampled; yielded enough water for a full analytical suite;
- SL-5; developed and sampled; yielded enough water for a full analytical suite;
- SL-6; developed and sampled; yielded enough water for a full analytical suite;
- SL-7; developed and sampled; yielded enough water for a full analytical suite;
- SL-8; developed and sampled; yielded enough water for a full analytical suite;
- MKTF-24; purged and sampled; yielded enough water for a full analytical suite;
- MKTF-25; purged and sampled; yielded enough water for a full analytical suite;
- MKTF-29; purged and sampled; yielded enough water for a full analytical suite;
- MKTF-30; purged and sampled; yielded enough water for a full analytical suite;
- MKTF-31; purged and sampled; yielded enough water for a full analytical suite;
- MKTF-40; purged and sampled; yielded enough water for a full analytical suite; and
- OAPIS-1; purged and sampled; yielded enough water for a full analytical suite.

4.4.1 Groundwater Investigation

The drilling equipment was decontaminated between each borehole, as described in Appendix B. The well development and purging are also discussed in Appendix B. The installation of the temporary wells and the collection of groundwater samples are discussed below in numerical order. The fluid level measurements discussed below are provided in Table 2 with the field water quality measurements.

SL-1

On October 28, 2019 the CME 55 track drilling rig was set up on location SL-1. The boring was installed using the HSA drilling method. Groundwater was encountered in a silty sandy clay and silty sand (9 feet bgl to 10.75 feet bgl). The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 1.5 feet bgl to 11.5 feet bgl. The top of the screen was set approximately 7.5 feet above the uppermost saturated interval (silty sandy clay and silty sand – 9 feet bgl to 10.75 feet bgl). The screen was extended to a depth of 11.5 feet bgl which allowed for screening across the saturated interval. The screen terminated in a clay/silty clay (10.75 feet bgl to 12 feet bgl) that was damp and did not exhibit visual or olfactory evidence of being impacted. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 1 feet bgl. A bentonite seal was installed from ground level to 1 feet bgl.

On October 30, 2019 the well was gauged. Groundwater was detected at 8.94 feet below top of casing (btoc) / 5.94 bgl. No SPH was detected. The well was developed and bailed down after 4.75 gallons. Additional gauging was conducted with the following results:

- October 31, 2019 – No SPH was detected. Depth to groundwater was 8.97 feet btoc / 5.97 feet bgl. The well was developed and bailed down after 4.10 gallons;
- November 1, 2019 – No SPH was detected. Depth to groundwater was 8.95 feet btoc / 5.95 feet bgl. The well was developed and bailed down after 3.5 gallons;
- November 4, 2019 – No SPH was detected. Depth to groundwater was 8.87 feet btoc / 5.87 feet bgl. The well was developed and bailed down after 3.5 gallons;
- November 11, 2019 – No SPH was detected. Depth to groundwater was 8.79 feet btoc / 5.79 feet bgl. The well was purged for sampling (4 gallons); and
- November 12, 2019 – No SPH was detected. Depth to groundwater was 8.85 feet btoc / 5.85 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-2

On October 29, 2019 the CME 55 track drilling rig was set up on location SL-2. The boring was installed using the HSA drilling method. The sampling was terminated at 16 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 2 feet bgl to 12 feet bgl. The top of the screen was set approximately 2 feet above the uppermost saturated interval (clayey sand – 4 feet bgl to 5.5 feet bgl). An additional saturated interval was encountered from 8 feet bgl to 10.75 feet bgl (clayey sand/sand). The screen was extended to a depth of 12 feet bgl, which allowed for screening across both saturated intervals. The screen terminated in a clay (11 feet bgl to 12 feet bgl) that was damp and did not exhibit visual or olfactory evidence of being impacted. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 1 feet bgl. A bentonite seal was installed from ground level to 1 feet bgl.

On October 30, 2019 the well was gauged. Groundwater was detected at 8.76 feet btoc / 5.76 bgl. No SPH was detected. The well was developed and bailed down after 5 gallons. Additional gauging was conducted with the following results:

- October 31, 2019 – No SPH was detected. Depth to groundwater was 8.82 feet btoc / 5.82 feet bgl. The well was developed and bailed down after 4.75 gallons;
- November 1, 2019 – No SPH was detected. Depth to groundwater was 8.75 feet btoc / 5.75 feet bgl. The well was developed and bailed down after 4.25 gallons;
- November 11, 2019 – No SPH was detected. Depth to groundwater was 8.59 feet btoc / 5.59 feet bgl. The well was purged for sampling (4 gallons); and
- November 12, 2019 – No SPH was detected. Depth to groundwater was 8.60 feet btoc / 5.60 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-3

On October 29, 2019 the CME 55 track drilling rig was set up on location SL-3. The sampling was terminated at 16 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl. The top of the screen was set approximately 5 feet above the uppermost

saturated interval (clayey sand – 8 feet bgl to 8.75 feet bgl). The screen was extended to a depth of 13 feet bgl, which allowed for screening across the uppermost saturated interval encountered (8 feet bgl to 8.75 feet bgl). The screen terminated in clay (12 feet bgl to 13 feet bgl). This interval did not exhibit visual or olfactory evidence of being impacted. A saturated clayey sand lense was observed at the base. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 2 feet bgl. A bentonite seal was installed from ground level to 2 feet bgl.

On October 30, 2019 the well was gauged. Groundwater was at detected 8.81 feet btoc / 5.81 feet bgl. No SPH was detected. The well was developed and bailed down after 5 gallons. Additional gauging was conducted with the following results:

- October 31, 2019 – No SPH was detected. Depth to groundwater was 8.98 feet btoc / 5.98 feet bgl. The well was developed and bailed down after 4.5 gallons;
- November 1, 2019 – No SPH was detected. Depth to groundwater was 8.86 feet btoc / 5.86 feet bgl. The well was developed and bailed down after 5 gallons;
- November 4, 2019 – No SPH was detected. Depth to groundwater was 8.87 feet btoc / 5.87 feet bgl. The well was developed and bailed down after 5 gallons;
- November 5, 2019 – No SPH was detected. Depth to groundwater was 8.77 feet btoc / 5.77 feet bgl. The well was developed and bailed down after 4.75 gallons;
- November 11, 2019 – No SPH was detected. Depth to groundwater was 8.78 feet btoc / 5.78 feet bgl. The well was purged for sampling (3.75 gallons); and
- November 12, 2019 – No SPH was detected. Depth to groundwater was 8.69 feet btoc / 5.69 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-4

On October 30, 2019 the CME 55 track drilling rig was set up on location SL-4. The sampling was terminated at 16 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl. The top of the screen was set approximately 1 foot above a moist to saturated silty sand (4 feet bgl to 5 feet bgl). The screen was extended to a depth of 13 feet bgl

which allowed for screening across the moist to saturated silty sand (4 feet bgl to 5 feet bgl) and a clayey sand (8 feet bgl to 9 feet bgl). The screen terminated in high plasticity clay (9 feet bgl to 13 feet bgl). This interval did not exhibit visual or olfactory evidence of being impacted. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 2 feet bgl. A bentonite seal was installed from ground level to 2 feet bgl.

On October 31, 2019 the well was gauged. Groundwater was detected at 8.55 feet btoc / 5.55 feet bgl. No SPH was detected. The well was developed and bailed down after 7.5 gallons. Additional gauging was conducted with the following results:

- November 1, 2019 – No SPH was detected. Depth to groundwater was 8.73 feet btoc / 5.73 feet bgl. The well was developed and bailed down after 3 gallons;
- November 4, 2019 – No SPH was detected. Depth to groundwater was 8.69 feet btoc / 5.69 feet bgl. The well was developed and bailed down after 5 gallons;
- November 11, 2019 – No SPH was detected. Depth to groundwater was 8.65 feet btoc / 5.65 feet bgl. The well was purged for sampling (3.5 gallons); and
- November 12, 2019 – No SPH was detected. Depth to groundwater was 8.42 feet btoc / 5.42 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-5

On October 30, 2019 the CME 55 track drilling rig was set up on location SL-5. The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl. The top of the screen was set approximately 1 foot above a moist to saturated clayey sand (4 feet bgl to 6 feet bgl). The screen was extended to a depth of 13 feet bgl, which allowed for screening across the moist to saturated clayey sand (4 feet bgl to 6 feet bgl) and a sandy clay (6 feet bgl to 8 feet bgl). The screen terminated in mudstone (10 feet bgl to 14 feet bgl). This interval did not exhibit visual or olfactory evidence of being impacted. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 2 feet bgl. A bentonite seal was installed from ground level to 2 feet bgl.

On October 31, 2019 the well was gauged. Groundwater was detected at 8.74 feet btoc / 5.74 feet bgl. No SPH was detected. The well was developed and bailed down after 9 gallons. Additional gauging was conducted with the following results:

- November 1, 2019 – No SPH was detected. Depth to groundwater was 8.69 feet btoc / 5.69 feet bgl. The well was developed and bailed down after 5 gallons;
- November 4, 2019 – No SPH was detected. Depth to groundwater was 8.63 feet btoc / 5.63 feet bgl. The well was developed and bailed down after 6 gallons;
- November 12, 2019 – No SPH was detected. Depth to groundwater was 8.56 feet btoc / 5.56 feet bgl. The well was purged for sampling (4 gallons); and
- November 13, 2019 – No SPH was detected. Depth to groundwater was 8.59 feet btoc / 5.59 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-6

On October 31, 2019 the CME 55 track drilling rig was set up on location SL-6. The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 3 feet bgl to 13 feet bgl. The top of the screen was set approximately 1 foot above a moist to saturated clayey sand (4 feet bgl to 8.5 feet bgl). The screen was extended to a depth of 13 feet bgl, which allowed for screening across the moist to saturated clayey sand (4 feet bgl to 8.5 feet bgl). The screen terminated in mudstone (12 feet bgl to 14 feet bgl). This interval did not exhibit visual or olfactory evidence of being impacted. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 2 feet bgl. A bentonite seal was installed from ground level to 2 feet bgl.

On November 1, 2019 the well was gauged. Groundwater was detected at 8.61 feet btoc / 5.61 feet bgl. No SPH was detected. The well was developed and bailed down after 5 gallons. Additional gauging was conducted with the following results:

- November 4, 2019 – No SPH was detected. Depth to groundwater was 8.59 feet btoc / 5.59 feet bgl. The well was developed and bailed down after 5 gallons;

- November 12, 2019 – No SPH was detected. Depth to groundwater was 8.51 feet btoc / 5.51 feet bgl. The well was purged for sampling (4 gallons); and
- November 13, 2019 – No SPH was detected. Depth to groundwater was 8.60 feet btoc / 5.60 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-7

On November 4, 2019 the CME 55 track drilling rig was set up on location SL-7. The sampling was terminated at 12 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 2 feet bgl to 12 feet bgl. The top of the screen was set approximately 2 feet above a saturated silty sand (4 feet bgl to 5.75 feet bgl). The screen was extended to a depth of 12 feet bgl, which allowed for screening across the saturated silty sand (4 feet bgl to 5.75 feet bgl) and a moist to saturated sandy clay/clayey sand (6 feet bgl to 8 feet bgl). The screen terminated in mudstone (10 feet bgl to 12 feet bgl). This interval did not exhibit visual or olfactory evidence of being impacted. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 1 foot bgl. A bentonite seal was installed from ground level to 1 foot bgl.

On November 5, 2019 the well was gauged. Groundwater was detected at 7.40 feet btoc / 4.40 feet bgl. No SPH was detected. The well was developed and bailed down after 4.75 gallons. Additional gauging was conducted with the following results:

- November 12, 2019 – No SPH was detected. Depth to groundwater was 7.28 feet btoc / 4.28 feet bgl. The well was purged for sampling (4 gallons); and
- November 13, 2019 – No SPH was detected. Depth to groundwater was 7.30 feet btoc / 4.30 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

SL-8

On November 4, 2019 the CME 55 track drilling rig was set up on location SL-8. The sampling was terminated at 14 feet bgl. A temporary monitoring well was installed at this location with 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 2 feet bgl to 12 feet bgl. The top of the screen was set approximately 2 feet above a moist to saturated sandy clay (4 feet bgl to 5 feet bgl). The screen was extended to a depth of 12 feet bgl, which allowed for screening across the moist to saturated sandy clay (4 feet bgl to 5 feet bgl) and a moist to saturated clayey sand (5 feet bgl to 9 feet bgl). The screen terminated in mudstone (11 feet bgl to 14 feet bgl). This interval did not exhibit visual or olfactory evidence of being impacted. The top of casing was 3 feet above the ground surface. Filter pack sand was installed around the screen and extended to 1 foot bgl. A bentonite seal was installed from ground level to 1 foot bgl.

On November 5, 2019 the well was gauged. Groundwater was detected at 8.73 feet btoc / 5.73 feet bgl. No SPH was detected. The well was developed and bailed down after 5.1 gallons. Additional gauging was conducted with the following results:

- November 12, 2019 – No SPH was detected. Depth to groundwater was 8.66 feet btoc / 5.66 feet bgl. The well was purged for sampling (4 gallons); and
- November 13, 2019 – No SPH was detected. Depth to groundwater was 8.60 feet btoc / 5.60 feet bgl. The well was sampled and yielded enough water to collect samples for all analyses.

On November 13, 2019 the well casing and screen were removed and the borehole was grouted.

MKTF-24

MKTF-24 is a permanent monitoring well located approximately 255 feet south-southeast from the center of the Sanitary Lagoon. The ground elevation at MKTF-24 is 6,926.07 ft msl. The top of casing elevation is 6,928.72 ft msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 ft msl.

The well was gauged on November 18, 2019. Groundwater was detected at 22.80 feet btoc / 6,905.92 feet msl. No SPH was detected. The well was purged for sampling and bailed down at 3 gallons. On November 19, 2019 the well was gauged. Groundwater was detected at 22.80 feet btoc

/ 6,905.92 feet msl. No SPH was detected. The well was sampled and yielded enough water to collect samples for all analyses.

MKTF-25

MKTF-25 is a permanent monitoring well located approximately 107 feet southwest from the center of the Sanitary Lagoon. The ground elevation at MKTF-25 is 6,913.35 feet msl. The top of casing elevation is 6,916.19 feet msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 feet msl.

The well was gauged on November 18, 2019. Groundwater was detected at 13.41 feet btoc / 6,902.78 feet msl. No SPH was detected. The well was purged for sampling and bailed down at 1.1 gallons. The well was allowed to recover and the well was gauged. Groundwater was detected at 16.02 feet btoc / 6,900.17 feet msl. No SPH was detected. The well was sampled on November 18, 2019 and yielded enough water to collect samples for all analyses.

MKTF-26

MKTF-26 is a permanent monitoring well located approximately 143 feet east-southeast from the center of the Sanitary Lagoon. The ground elevation at MKTF-26 is 6,912.55 feet msl. The top of casing elevation is 6,915.31 feet msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 feet msl.

The well was gauged on November 19, 2019. SPH was detected in the well at 8.38 feet btoc / 6906.93 feet msl. Groundwater was detected at 9.02 feet btoc / 6,906.80 feet msl (corrected for SPH). MKTF-26 was not sampled due to the presence of SPH.

MKTF-29

MKTF-29 is a permanent monitoring well located approximately 194 feet northwest-north from the center of the Sanitary Lagoon. The ground elevation at MKTF-29 is 6,898.83 feet msl. The top of casing elevation is 6,901.62 feet msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 feet msl.

The well was gauged on November 18, 2019. Groundwater was detected at 5.63 feet btoc / 6,895.99 feet msl. No SPH was detected. The well was purged for sampling (9 gallons). The well

was allowed to recover. It was sampled on November 18, 2019 and yielded enough water to collect samples for all analyses.

MKTF-30

MKTF-30 is a permanent monitoring well located approximately 445 feet west-northwest from the center of the Sanitary Lagoon. The ground elevation at MKTF-30 is 6,898.10 feet msl. The top of casing elevation is 6,900.80 feet msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 feet msl.

The well was gauged on November 18, 2019. Groundwater was detected at 15.79 feet btoc / 6,885.01 feet msl. No SPH was detected. The well was purged for sampling and bailed down at 3.5 gallons. The well was allowed to recover and was sampled. MKTF-30 yielded enough water to collect samples for all analyses.

MKTF-31

MKTF-31 is a permanent monitoring well located approximately 457 feet west-southwest from the center of the Sanitary Lagoon. The ground elevation at MKTF-31 is 6,904.26 feet msl. The top of casing elevation is 6,906.87 feet msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 feet msl.

The well was gauged on November 18, 2019. Groundwater was detected at 8.51 feet btoc / 6,898.36 feet msl. No SPH was detected. The well was purged for sampling (6 gallons). The well was allowed to recover. It was sampled on November 18, 2019 and yielded enough water to collect samples for all analyses.

MKTF-40

MKTF-40 is a permanent monitoring well located approximately 722 feet west from the center of the Sanitary Lagoon. The ground elevation at MKTF-40 is 6,891.35 feet msl. The top of casing elevation is 6,894.33 feet msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 feet msl.

The well was gauged on November 19, 2019. Groundwater was detected at 13.06 feet btoc / 6,881.27 feet msl. No SPH was detected. The well was purged for sampling (6 gallons). The well

was allowed to recover. It was sampled on November 19, 2019 and yielded enough water to collect samples for all analyses.

OAPIS-1

OAPIS-1 is a permanent monitoring well located approximately 430 feet north-northeast from the center of the Sanitary Lagoon. The ground elevation at OAPIS-1 is 6,914.37 feet msl. The top of casing elevation is 6,916.73 feet msl. The ground elevation at the center of the Sanitary Lagoon is approximately 6,910 feet msl.

The well was gauged on November 18, 2019. Groundwater was detected at 11.67 feet btoc / 6,905.06 feet msl. No SPH was detected. The well was purged for sampling and bailed down at 7.8 gallons. The well was gauged on November 19, 2019. Groundwater was detected at 21.97 feet btoc / 6,894.76 feet msl. OAPIS-1 was sampled on November 19, 2019 and yielded enough water to collect samples for all analyses.

Section 5
Regulatory Criteria

The applicable screening and potential cleanup levels are specified in NMED's *Risk Assessment Guidance for Site Investigations and Remediation* dated March 2019 and in the Environmental Protection Agency's (EPA) Regional Screening Levels dated November 2019.

For non-residential properties (e.g., the Gallup Refinery), the soil screening levels must be protective of commercial/industrial workers throughout the upper one foot of surface soils and construction workers throughout the upper ten feet based on NMED criteria. NMED residential soil screening levels are applied to the upper ten feet and soil screening levels for protection of groundwater apply throughout the vadose zone. EPA soil screening levels for direct contact exposure apply to the upper two feet of the vadose zone. To achieve closure as "corrective action complete without controls," the affected media must meet residential screening levels, which are presented in Table 3. Table 3 also provides a list of the available NMED and EPA soil screening levels for non-residential properties. While Table 3 indicates the various depths to which the individual soil screening levels are applicable, Table 5 discussed below does not include this level of detail. Table 3 has soil screening levels for the soil-to-groundwater pathway that are based on a dilution/attenuation factor (DAF) of 1.0, which is NMED's most conservative screening level for this pathway.

The groundwater cleanup levels are based on New Mexico Water Quality Control Commission (WQCC) standards (20.6.2.7 WW NMAC, 20.6.2.3103, and 20.6.2.4103) unless there is a federal maximum contaminant level (MCL), in which case the lower of the two values is selected as the cleanup level. If neither a WCQQ standard nor an MCL is available, then the cleanup level is based on a NMED Tap Water Screening Level. If a NMED Tap Water Screening Level is not available for a constituent, then an EPA Regional Screening Level is used. If an EPA Regional Screening Level is for a carcinogenic compound, then the screening level is multiplied by 10 to bring the risk level to 1E-05 to be consistent with the NMED screening levels. Table 4 presents the groundwater cleanup levels.

The screening levels that are compared to individual soil sample results are presented in Table 5. The screening levels included in Table 5 are based on residential and non-residential land use. For the non-residential screening levels, the lower of the construction worker scenario and commercial/industrial scenario screening levels for each constituent is included in the data tables if

NMED screening levels are available. If NMED soil screening levels are not available for a particular constituent, then EPA soils screening levels are used. If an EPA soil screening level is for a carcinogenic compound, then the screening level is multiplied by 10 to bring the risk level to 1E-05 to be consistent with the NMED screening levels. The screening levels in Table 5 have not been segregated based on depth of the soil sample as discussed above for Table 3. The screening levels that are compared to individual groundwater sample results are presented in Table 6.

A review of the NMED guidelines for TPH indicates that the TPH screening levels were developed based on screening levels and compositional assumptions developed by the Massachusetts Department of Environmental Protection (MADEP). The analytical results, as presented in Table 5, are reported for gasoline range organics (C6-C10), diesel range organics (>C10-C28), and motor oil range organics (>C28-C35). The applicable TPH screening levels for comparison to the individual soil samples are selected from Table 6-2 of the NMED guidance (NMED, 2019).

As there is no information to determine what types of petroleum products could be present, the screening level for "unknown oil" was selected for comparison to the gasoline range, diesel range and motor oil range soil analytical results. The motor oil range analytical results are compared to the "unknown oil" screening level as directed by NMED. However, it is noted that the laboratory analyses for motor oil range organics only reports results for the >C28 to C35 hydrocarbon range, while the "unknown oil" screening level is based on a hydrocarbon mixture assumed to include only C11-C22 aromatics. The diesel range and motor oil range organic results for the groundwater samples are compared to the "unknown oil" screening level, while the gasoline range results are compared to the "gasoline" groundwater screening level.

Some of the individual constituents reported by the laboratory in the soil results do not have screening levels, but were all non-detect except sulfate, 4-isopropyltoluene, and fecal coliform. With respect to groundwater, there is one constituent (4-isopropyltoluene) with detections for which there is not a screening level.

Section 6
Site Impacts

This section discusses the chemical analyses performed and presents the analytical results that were obtained through the analysis of soil and groundwater samples. The results for soils and groundwater analyses are compared to applicable screening levels, as described in Section 5.0.

6.1 Soil Analytical Results

Soil samples were analyzed by Hall Environmental Analysis Laboratory in Albuquerque, New Mexico using the following methods for organic constituents:

- SW-846 Method 8260/5035 volatile organic compounds;
- SW-846 Method 8270C semi-volatile organic compounds; and
- SW-846 Method 8015D gasoline, diesel, and motor oil range petroleum hydrocarbons.

Soil samples were analyzed for the following metals using the indicated analytical methods, respectively.

Analyte	Analytical Method
Antimony	SW-846 Method 6010B
Arsenic	SW-846 Method 6010B
Barium	SW-846 Method 6010B
Beryllium	SW-846 Method 6010B
Cadmium	SW-846 Method 6010B
Chromium	SW-846 Method 6010B
Hexavalent Chromium	SW-846 Method 7199
Cobalt	SW-846 Method 6010B
Cyanide	SW-846 Method 9012B
Iron	SW-846 Method 6010B
Lead	SW-846 Method 6010B
Mercury	SW-846 Method 7471
Manganese	SW-846 Method 6010B

Analyte	Analytical Method
Nickel	SW-846 Method 6010B
Selenium	SW-846 Method 6010B
Silver	SW-846 Method 6010B
Vanadium	SW-846 Method 6010B
Zinc	SW-846 Method 6010B

Additional analyses include:

- EPA Method 300 chloride, fluoride, sulfate, nitrate, and nitrite;
- EPA Method 1681 fecal coliform; and
- Method 9223B-2004 E. coli, and total coliform.

The analytical results for soil samples are summarized in Table 5. The individual results that exceed the applicable cleanup levels are highlighted and/or bolded, as noted in the table footnotes. Maps showing the distribution of constituents detected in soils above the lowest applicable screening levels are included as Figures 9 and 10. The concentrations shown on figures that exceed the screening levels in Table 5 are underlined. The laboratory analytical reports are included in Appendix E and the data validation of the results are included in Appendix D. The constituents that have concentrations in soils above screening levels are discussed below.

All manganese sample results are less than the residential soil screening level of 10,500 mg/kg. Six soil samples [SL-1 (12-14'), SL-2 (14-16'), SL-4 (14-16'), SL-6 (12-14'), SL-7 (10-12') and SL-8 (12-14')] have concentrations ranging from 480 mg/kg to 750 mg/kg, which exceed the non-residential screening level of 464 mg/kg. The detected concentrations range from 65 mg/kg to 750 mg/kg. The concentrations are plotted on Figure 9.

Diesel Range Organics were detected at concentrations above the residential soil screening level of 1,000 mg/kg in three soil samples [SL-2 (0-0.5'), SL-3 (0-0.5') and SL-8 (0-0.5')] at concentrations of 2,600 mg/kg, 1,300 mg/kg, and 2,600 mg/kg, respectively, as indicated with highlighting in Table 5. None of the concentrations exceed the non-residential screening level of 3,800 mg/kg. The detected concentrations range from 2.3 mg/kg to 2,600 mg/kg. The concentrations are plotted on Figure 10.

6.2 Groundwater Analytical Results

The groundwater samples were analyzed for organic constituents by the following methods:

- SW-846 Method 8260 volatile organic compounds;
- SW-846 Method 8270 semi-volatile organic compounds;
- SW-846 Method 8015D gasoline range organics; and
- SW-846 Method 8015M/D diesel and motor oil range organics.

Groundwater samples were analyzed for the following total and dissolved metals using the indicated analytical methods.

Analyte	Analytical Method
Antimony	SW-846 Method 200.8
Arsenic	SW-846 Method 200.8
Barium	SW-846 Method 200.7
Beryllium	SW-846 Method 200.7
Cadmium	SW-846 Method 200.7
Chromium	SW-846 Method 200.7
Cobalt	SW-846 Method 200.7
Iron	SW-846 Method 200.7
Lead	SW-846 Method 200.8
Manganese	SW-846 Method 200.7
Nickel	SW-846 Method 200.7
Selenium	SW-846 Method 200.8
Silver	SW-846 Method 200.7
Vanadium	SW-846 Method 200.7
Zinc	SW-846 Method 200.7

Groundwater samples were also analyzed for the following total metals using the indicated analytical methods.

Analyte	Analytical Method
Cyanide	SW-846 Method E335.4
Mercury	SW-846 Method 245.1
Hexavalent Chromium	SW-846 Method 7199

In addition, groundwater samples were analyzed using the following analytical methods:

- EPA method 300 for chloride, fluoride, nitrate, nitrite, and sulfate;
- H 8000 for chemical oxygen demand;
- Method M5210 B for biochemical oxygen demand;
- SM 9223 B for E. coli and total coliform.

The analytical results and the applicable cleanup levels are presented in Table 6. The individual results that exceed the applicable cleanup levels are bolded. Maps depicting the distribution of the various constituents detected in groundwater samples above the screening levels are provided in Figures 11 through 15, with the concentrations that exceed the screening levels underlined. The results for the associated QA/QC samples and the data validation are provided in Appendix D. The laboratory analytical reports are included in Appendix E. The constituents with reported concentrations that exceed screening levels are discussed below.

Iron was detected above the screening level in samples analyzed for total (nine exceedances at SL-1, SL-3, SL-4, SL-5, MKTF-25, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1) and dissolved analyses (one exceedance at OAPIS-1). The total iron concentrations range from 660 ug/l to 10,000 ug/l in comparison to a screening level of 1,000 ug/l. The dissolved concentrations range from 13 ug/l to 3,200 ug/l vs. a screening level of 1,000 ug/l. The total and dissolved analyses results are shown on Figure 11.

Manganese was detected above the screening level (200 ug/l) in 13 total analyses in samples SL-1, SL-2, SL-3, SL-4, SL-5, SL-6, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-29, MKTF-30, and OAPIS-1 and 12 dissolved analyses in samples SL-1, SL-2, SL-3, SL-4, SL-5, SL-6, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-29, and OAPIS-1. The total analyses results range from 56 ug/l to 15,000 ug/l. The dissolved manganese concentrations range from 1.3 ug/l to 17,000 ug/l. The total and the dissolved analyses results are shown on Figure 11.

Chloride was detected above the screening level (250,000 ug/l) in 10 of the groundwater samples (SL-1, SL-5, SL-7, MKTF-24, MKTF-25, MKTF-29, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1). The analytical results range from 110,000 ug/l to 2,800,000 ug/l. The concentrations are shown on Figure 12. Sulfate was not detected above the screening level (600,000 ug/l), but the results are included with chloride on Figure 12.

There are eight detections of 1,1-dichloroethane above the screening level (25 ug/l) that occur in samples SL-1, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-30, and MKTF-31. The detected results range from 0.56 to 120 ug/l and are shown on Figure 13.

There are seven detections of 1,1-dichloroethene above the screening level (7 ug/l) that occur in samples SL-1, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, and MKTF-31. The detected results range from 0.74 to 65 ug/l and are shown on Figure 13.

There are four detections of 1,2-dichloroethane above the screening level (5 ug/l) that occur in samples SL-1, MKTF-24, MKTF-25, and MKTF-31. The detected results range from 0.44 to 21 ug/l and are shown on Figure 13.

There is one detection of 1-methylnaphthalene at 49 ug/l that is above the screening level (11.38), which occurs in sample OAPIS-1. The detected results range from 0.55 to 49 ug/l and are shown on Figure 13.

There are seven detections of benzene above the screening level (5 ug/l) that occur in samples SL-1, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, and OAPIS-1. The detected results range from 0.17 to 5,000 ug/l and are shown on Figure 14.

There are five detections of MTBE above the screening level (100 ug/l) that occur in samples SL-5, SL-8, MKTF-24, MKTF-25, and OAPIS-1. The detected results range from 0.17 to 5,000 ug/l and are shown on Figure 14.

There are two detections of trichloroethene above the screening level (5 ug/l) that occur in samples SL-5 and MKTF-25 at concentrations of 8.7 ug/l and 11 ug/l, respectively. The detected results range from 2.3 to 11 ug/l and are shown on Figure 14.

There are four detections of vinyl chloride above the screening level (2 ug/l) that occur in samples SL-5, SL-7, MKTF-24, and MKTF-25. The detected results range from 0.46 to 37 ug/l and are shown on Figure 14.

Gasoline Range Organics were detected above the screening level (10.1 ug/l) in 12 samples, including SL-1, SL-2, SL-3, SL-4, SL-5, SL-7, SL-8, MKTF-24, MKTF-25, MKTF-30, MKTF-31, and OAPIS-1. The detected results range from 25 to 17,000 ug/l and are shown on Figure 15.

Diesel Range Organics were detected above the screening level (85.8 ug/l) in one groundwater sample (OAPIS-1) at a concentration of 1,400 ug/l. This was the only detection for DRO and the results are shown on Figure 15.

6.3 General Groundwater Chemistry

The measurement of field purging parameters included measurement of groundwater pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, turbidity, and temperature. The final results of the measurements taken before sample collection are included in Table 2.

Section 7
Conclusions and Recommendations

This section summarizes and provides an evaluation of the potential impacts as shown in field screening data and analytical data. This is followed by recommendations for any future actions.

7.1 Conclusions

Soils

The analytical results from the analysis of soil samples indicate impacts to the environment from past operations at the Sanitary Lagoon. As noted above in Section 6.1, one metal (manganese) is present at concentrations above the non-residential screening level. All of these exceedances occur at depths of 10 feet or greater, where the non-residential screening levels would not apply. The exceedance of screening levels for organic analyses is limited to diesel range organics. The three exceedances for DRO occur within the upper two feet.

There was a single detection of fecal coliform at a concentration of 5.14 Most Probable Number (MPN)/ gram in sample SL-4 (2-2.5'). Two samples [SL-6 (0-0.5') and SL-8 (0-0.5')] tested positive for total coliform.

Groundwater

Concentrations of two metals (iron and manganese) in the total metals analyses exceed screening levels, while only manganese exceeds the screening level in the dissolved metals analyses. Chloride was found at concentrations exceeding the screening level in the majority of the groundwater samples collected across the entire area, including the MKTF wells, with only three of the Sanitary Lagoon (SL) samples exceeding the screening level. Eight individual organic constituents were detected in the groundwater samples above screening levels including 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, 1-methylnaphthalene, benzene, MTBE, trichloroethene, and vinyl chloride. 1,2-Dichloroethane and MTBE are common gasoline additives and both are likely to have been used at the refinery; MTBE is known to have been used. 1,1-Dichloroethane is a common daughter product resulting from the degradation of 1,1,1-trichloroethane, which is documented to have been used at the refinery (Western, 2015). Trichloroethene, which is documented to have been used at the refinery, degrades to 1,1-dichloroethene and vinyl chloride (Western, 2015). The

aforementioned degradation pathways are documented by the United States Environmental Protection Agency (EPA, 2000).

Values for BOD were reported for three samples (MKTF-24, MKTF-25, and OAPIS-1) with reported values of 13,000 ug/l, 6,000 ug/l, and 5,700 ug/l, respectively. Values for COD were reported for all groundwater samples with values ranging from 23,500 ug/l to 482,000 ug/l. Total coliform was reported as "present" in all groundwater samples collected beneath the Sanitary Lagoon (SL-1 through SL-8). E. coli was reported as "absent" in all groundwater samples.

7.2 Recommendations

The detections of manganese above screening levels occur at such depths that the non-residential screening levels do not apply and no further activity is recommended in regards to manganese. Detections of DRO in soils above screening levels occur in the upper two feet and additional delineation sampling at similar depths is recommended to the south of SL-8 and east and north of SL-2 and SL-3.

The observed groundwater impacts beneath the Sanitary Lagoon are generally similar to those observed in the surrounding MKTF wells, including in particular MKTF-24 that is up-gradient and for several constituents has even higher concentrations. Therefore, no singular action is recommended for groundwater beneath the Sanitary Lagoon, but rather it should be addressed as part any response action to address the larger plume that surrounds the Sanitary Lagoon.

Section 8
References

DiSorbo, 2019, Investigation Work Plan Sanitary Lagoon, Marathon Petroleum Company, Gallup Refinery.

EPA, 2000, BIOCHLOR Natural Attenuation Decision Support System, User's Manual Version 1.0, United States Environmental Protection Agency, EPA/600/R-00/008, p. 46.

Heckert, A.B. and Lucas, S.G., 1996, *Stratigraphic description of the Tr-4 unconformity in west-central New Mexico and eastern Arizona*: New Mexico Geology, Vol. 18, No. 3, pp. 61-70.

Lucas, S. G., Heckert, A.B., and Anderson, O. J., 1997, *Triassic Stratigraphy and Paleontology on the Fort Wingate quadrangle, west-central New Mexico*, New Mexico Geology, Vol. 19, No. 2. pp 33 - 42.

NMED, 2019, *Risk Assessment Guidance for Site Investigations and Remediation*, New Mexico Environment Department, p.91.

Stone, W.J., Lyford, F.P., Frenzel, P.F., Mizel, N.H., and Padgett, E.T., 1983, *Hydrogeology and Water Resources of San Juan Basin, New Mexico*; Hydrogeologic Report 6, New Mexico Bureau of Mines and Mineral Resources, p. 70.

USDA, 2005, *Soil Survey of McKinley County Area, New Mexico, McKinley County and Parts of Cibola and San Juan Counties*, p. 683.

Western Refining, 2009, *Facility Wide Groundwater Monitoring Work Plan*, Western Refining Company Southwest, Inc., p. 78.

Western Refining, 2015, *RE: RCRA Permit – Supplemental Information Western Refining Southwest, Inc. Gallup Refinery*; November 16, 2015, p. 324.

Tables

Table 1 **Vapor Screening Results**

Table 2 **Groundwater Field Measurements**

Table 3 **Soil Screening Levels**

Table 4 **Groundwater Screening Levels**

Table 5 **Soil Analytical Results Summary**

Table 6 **Groundwater Analytical Results Summary**

Table 1 - Vapor Screening Results
Marathon Petroleum Company - Gallup Refinery - Sanitary Lagoon
Gallup, New Mexico

Sample Interval Depth (ftbgl)	SL-1 (ppm)	SL-2 (ppm)	SL-3 (ppm)	SL-4 (ppm)	SL-5 (ppm)	SL-6 (ppm)	SL-7 (ppm)	SL-8 (ppm)
0 - 0.5	1.5	0.4	0.6	0.2	1.3	1.9	3.8	12.7
0.5 - 2	8.1	0.5	2.1	0.2	1.4	1.6	5.0	5.9
2 - 2.5	1341	23.8	1.5	0.2	1.6	2.1	7.8	8.3
2.5 - 4	353	18.1	2.9	0.4	1.5	1.2	46.1	6.1
4 - 5	30.6	7.7	3.1	0.5	2.9	1.9	200	6.9
5 - 6	8.9	6.3	NR - NR	1.5	10.1	2.0	86.6	18.2
6 - 8	8.6	5.9	5.5	1.4	58	3.2	SAT. - NR	27.9
8 - 10	11.8	SAT. - NR	5.4 / 5.5	1.3	3.1	2.7 / 3.2	7.7 / 4.1	7.5 / 4.6
10 - 12	1.9	5.9	5.4	1.1	0.5	3.1	3.3	5.1 / 5.5
12 - 14	1.8	5.1	4.9	0.9	0.3	1.1	TD @ 12 ftbgl	4.5
14 - 16	TD @ 14 ftbgl	3.0	4.8	0.8	TD @ 14 ftbgl	TD @ 14 ftbgl		TD @ 14 ftbgl
		TD @ 16 ftbgl	TD @ 16 ftbgl	TD @ 16 ftbgl				

ftbgl - feet below ground level ppm - parts per million

NR - NR - No sample recovery. No reading was collected. SAT. - NR - Interval was saturated. No reading was collected.

TABLE 2 - Groundwater Field Measurements
Marathon Petroleum Company - Gallup Refinery - Sanitary Lagoon
Gallup, New Mexico

WELL	DATE	GROUND LEVEL ELEVATION (ft-msl)	TOP OF WELL CASING ELEVATION (ft-msl)	DEPTH TO PSH (btoc-ft)	DEPTH TO GROUNDWATER (btoc-ft)	DEPTH TO GROUNDWATER (bgl-ft) [2]	TOTAL WELL DEPTH (ft)	GROUND WATER ELEVATION (ft-msl)	WELL SCREEN INTERVAL (bgl-ft)	CASING STICKUP (agl-ft)	NITRATE [1] (mg/l)	NITRITE [1] (mg/l)	TEMPERATURE °F	SPECIFIC CONDUCTIVITY (uS/cm)	DISSOLVED OXYGEN (mg/L)	pH	OXYGEN REDUCTION POTENTIAL	TURBIDITY (NTU)
SL-1	11/11/19	6912.71	6915.71	ND	8.79	5.79	14.43	6906.92	1.5 - 11.5	3	NM	NM	56.0	7,728	3.70	6.98	82.3	145
SL-2	11/11/19	6910.74	6913.74	ND	8.59	5.59	15.01	6905.15	2 - 12	3	NM	NM	55.5	2,038	6.06	7.36	137.2	226
SL-3	11/11/19	6910.01	6913.01	ND	8.78	5.78	15.51	6904.23	3 - 13	3	NM	NM	53.4	1,968	8.83	7.27	176.5	>1100
SL-4	11/11/19	6909.37	6912.37	ND	8.65	5.65	15.65	6903.72	3 - 13	3	NM	NM	53.0	2,098	5.59	7.23	184.1	1,060
SL-5	11/12/19	6909.72	6912.72	ND	8.56	5.56	16.15	6904.16	3 - 13	3	NM	NM	50.2	2,309	6.15	6.95	125.8	344
SL-6	11/12/19	6909.54	6912.54	ND	8.51	5.51	16.00	6904.03	3 - 13	3	13.2	0	51.2	2,107	7.78	7.24	182.7	191
SL-7	11/12/19	6908.81	6911.81	ND	7.28	4.28	14.83	6904.53	2 - 12	3	8.8	NM	51.5	2,345	7.78	7.12	185.9	86.5
SL-8	11/12/19	6909.67	6912.67	ND	8.66	5.66	15.80	6904.01	2 - 12	3	17.6	0	54.2	2,282	6.92	7.24	201.9	311
MKTF-24	11/18/19	6924.62	6928.72	ND	22.80	20.15	31.10	6905.92	18 - 28	2.65	0	NM	54.9	1,828	2.66	7.03	-3.09	>1100
MKTF-25	11/18/19	6911.79	6916.19	ND	13.41	10.57	20.10	6902.78	6 - 16	2.84	NM	NM	56.0	4,345	4.42	6.80	11.9	1,030
MKTF-26	11/19/19	6911.35	6915.31	8.38	9.02	6.26	16.89	6906.80	4 - 14	2.76	NM	NM	NM	NM	NM	NM	NM	NM
MKTF-29	11/18/19	6897.67	6901.62	ND	5.63	2.84	22.82	6895.99	10 - 20	2.79	NM	NM	61.2	3,770	4.04	7.00	216.8	104
MKTF-30	11/18/19	6896.68	6900.80	ND	15.79	13.09	22.91	6885.01	10 - 20	2.70	8.8	0.67	59.0	2,905	4.47	6.97	262.9	111
MKTF-31	11/18/19	6903.11	6906.87	ND	8.51	5.90	19.37	6898.36	6 - 21	2.61	NM	NM	59.8	2,513	3.80	7.19	163.8	60.6
MKTF-40	11/19/19	6890.48	6894.33	ND	13.06	10.08	23.64	6881.27	5 - 20	2.98	NM	NM	56.6	8,945	3.15	7.08	233.0	84.9
OAPIS-1	11/18/19	6914.37	6916.73	ND	11.67	9.31	27.90	6905.06	16 - 26	2.36	NM	NM	63.5	5,321	0.91	7.02	-50.9	33.3

bgl - below ground level
agl - above ground level
PSH - phase separated hydrocarbon
ft - feet
ft-msl - feet above mean sea level
btoc - below top of casing
ND - none detected NTU - nephelometric turbidity unit
NM - not measured
mg/l - milligrams per liter
1 - Field Test Kit (Hach NI-12) was used to determine the concentrations of nitrate and nitrite

Table 3 - Soil Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	NMED Residential (0-10')	endpoint	EPA Residential (0-2')	endpoint	NMED IndOccSoil (0-1')	NMED IndOccSoil_Endpoint	NMED ConsWork Soil (0-10')	NMED ConsWork Soil_ Endpoint	EPA Industrial Soil (0-2')	EPA IndSoil_ key	NMED DAF1 SoilGW	EPA GW_Risk-based SSL SoilGW	NMED/ MCL-based SSL, DAF 1
Metals (mg/kg)													
Antimony	31.28571429	n	31	n	519.111111	n	141.575758	n	470	n	0.27104		0.27104
Arsenic	7.074957917	c	0.68	c*R	35.8843339	c	41.1506512	n	3	cR	0.291733		0.2917333
Barium	15558.08476	n	15000	n	254671.051	n	4391.7145	n	220000	nm	82.34667	160	82.346667
Beryllium	156.2157756	n	160	n	2583.16948	n	148.103365	n	2300	n	3.160693		3.1606933
Cadmium	70.52926266	n	71	n	1107.92874	n	72.1470065	n	980	n	0.375867		0.3758667
Chromium (Total)	96.60343409	c			504.62286	c	133.737855	n			180000		180000
Cobalt	23.44831516	n	23	n	388.402156	n	36.7434871	n	350	n	0.270092	0.27	-
Cyanide	11.15070404	n	23	n	63.3361859	n	12.0686831	n	150	n	0.035643	0.015	0.0356426
Iron	54750	n	55000	n	908444.444	n	247757.576	n	820000	nm	347.9428	350	
Lead	-	-	400	G	-	-	-	IEUBK	800	G	0.0026	#N/A	0.0026
Manganese	10547.69639	n	1800	n	160183.087	n	463.837179	n	26000	n	131.4807	28	
Mercury (elemental)	23.77624297	n	11	ns	112.076566	n	20.6835849	n	46	ns	0.104453	0.033	0.1044526
Nickel	1559.564767	n	1500	n	25681.9054	n	753.129017	n	22000	n	24.24168	26	-
Selenium	391.0700968	n	390	n	6488.81111	n	1753.13151	n	5800	n	0.258667	0.52	0.2586667
Silver	391.0714286	n	390	n	6488.88889	n	1769.69697	n	5800	n	0.687961	0.8	-
Vanadium	393.9295498	n	390	n	6525.03137	n	614.077939	n	5800	n	63.07862	86	-
Zinc	23464.28571	n	23000	n	389333.333	n	106181.818	n	350000	nm	370.5807	370	-
Volatiles (mg/kg)													
1,1,1,2-Tetrachloroethane	28.06299779	c	2	c	137.227781	c	658.515124	c	8.8	c	0.001801	0.00022	-
1,1,1-Trichloroethane	14374.90324	n	8100	ns	72532.238	n	13601.9086	n	36000	ns	0.063818		0.0638182
1,1,2,2-Tetrachloroethane	7.984465167	c	0.6	c	39.3976459	c	196.512399	c	2.7	c	0.00024	0.00003	-
1,1,2-Trichloroethane	2.61310964	n	1.1	c**	12.391786	n	2.30274072	n	5	c**	0.001341	0.000089	0.0013411
1,1-Dichloroethane	78.60621702	c	3.6	c	383.266467	c	1817.05898	c	16	c	0.006799	0.00078	-
1,1-Dichloroethene	439.9346968	n	230	n	2255.40774	n	423.909375	n	1000	n	0.002396		0.0023964
1,1-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorobenzene, 1,2,3-	-	-	63	n	-	-	-	-	930	n	-	0.021	-
1,2,3-Trichloropropane	0.051049053	c	-	-	1.21125926	c	6.3146991	n	-	-	2.91E-06	3.2E-07	-
1,2,4-Trichlorobenzene	82.90549359	n	-	-	422.891355	n	79.1109174	n	-	-	0.154975	0.0034	0.1549752
Trimethylbenzene, 1,2,4-	-	-	300	ns	-	-	-	-	1800	ns	-	0.081	-
1,2-Dibromoethane (Ethylene dibromide)	0.672476199	c	0.036	c	3.30948158	c	16.3184125	c	0.16	c	1.18E-05		1.179E-05
1,2-Dichlorobenzene	2149.557119	n	1800	ns	12967.4635	n	2495.84131	n	9300	ns	0.453963	0.3	0.453963
1,2-Dichloroethane	8.315434498	c	-	-	40.6737882	c	53.8326771	n	-	-	0.001191	0.000048	0.0011911
1,2-Dichloropropane	17.7717301	c	2.5	c**	86.8228257	c	25.4468715	n	11	c**	0.001387	0.00028	0.0013874
Trimethylbenzene, 1,3,5-	-	-	270	ns	-	-	-	-	1500	ns	-	0.087	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichloropropane, 1,3-	-	-	1600	ns	-	-	-	-	23000	ns	-	0.13	-
1,4-Dichlorobenzene	1290	c	2.6	c	6730	c	24800	n	11	c	0.056061	0.00046	0.0560611
1-Methylnaphthalene	171.5924997	c	18	c	812.956959	c	6058.73325	c	73	c	0.044656	0.006	-
2,2-Dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3 - Soil Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

2-Butanone (Methyl ethyl ketone, MEK)	37418.18384	n	27000	n	410979.561	n	91656.7106	n	190000	nms	1.003665	1.2	-
o-Chlorotoluene	1564.285714	n	-	-	25955.5556	n	7078.78788	n	-	-	0.178177	0.23	-
Hexanone, 2-	-	-	200	n	-	-	-	-	1300	n	-	0.0088	-
2-Methylnaphthalene	231.7975423	n	240	n	3367.96454	n	1004.01865	n	3000	n	0.137851	0.19	-
Chlorotoluene, p-	-	-	1600	ns	-	-	-	-	23000	ns	-	0.24	-
4-Isopropyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl isobutyl ketone	5808.948357	n	33000	ns	81647.6456	n	20233.6053	n	140000	nms	0.239827	1.4	-
Acetone	66313.24226	n	61000	n	960090.734	n	241548.31	n	670000	nms	2.489842	2.9	-
Benzene	17.79460341	c	1.2	c*	87.2403585	c	141.859846	n	5.1	c*	0.002089	0.00023	0.0020891
Bromobenzene	-	-	290	n	-	-	-	-	1800	ns	-	0.042	-
Bromodichloromethane	6.192908208	c	0.29	c	30.1752832	c	142.609614	c	1.3	c	0.00031	0.000036	-
Tribromomethane (Bromoform)	674.1123176	c	19	c*	1760.351	c	5381.24856	n	86	c	0.007344	0.00087	-
Bromomethane	17.72689001	n	6.8	n	94.5152335	n	17.8608572	n	30	n	0.001715	0.0019	-
Carbon disulfide	1554.163366	n	770	ns	8541.0293	n	1621.48136	n	3500	ns	0.220874	0.24	-
Carbon tetrachloride	10.73452785	c	0.65	c	52.5035714	c	201.542918	n	2.9	c	0.001837	0.00018	0.0018371
Chlorobenzene (Monochlorobenzene)	378.4101248	n	280	n	2157.37076	n	411.626087	n	1300	ns	0.053863	0.053	0.0538634
Ethyl chloride	18995.90966	n	14000	ns	89543.0085	n	16644.4307	n	57000	ns	5.370846	5.9	-
Chloroform	5.899429115	c	0.32	c	28.6649065	c	133.938741	c	1.4	c	0.000546	0.000061	-
Chloromethane	41.14150758	c	110	n	200.776704	c	234.963523	n	460	n	0.004758	0.049	-
cis-1,2-Dichloroethene	156.4285714	n	160	n	2595.55556	n	707.878788	n	2300	n	0.017618	0.011	0.0176184
cis-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	13.90308173	c	8.3	c	67.3660386	c	340.486242	c	39	c	0.000377	0.00023	-
Dibromomethane (Methylene Bromide)	-	-	24	n	-	c	-	-	99	n	0.001677	0.0021	-
Dichlorodifluoromethane	181.9388375	n	87	n	864.825195	n	160.927034	n	370	n	0.361467	0.3	-
Ethylbenzene	75.10635655	c	5.8	c	367.636701	c	1771.91001	c	25	c	0.615369	0.0017	0.6153693
Hexachloro-1,3-butadiene	61.63458291	n	1.2	c*	52.081725	c	269.062428	n	5.3	c	0.002066	0.00027	-
Cumene (isopropylbenzene)	2364.349048	n	1900	ns	14223.1558	n	2737.88125	n	9900	ns	0.569049	0.74	-
tert-Butyl methyl ether (MTBE)	974.8113199	c	47	c	4817.93886	c	24230.6892	c	210	c	0.027664	0.0032	-
Methylene chloride (Dichloromethane)	409.1270097	n	57	c**	5130.9539	n	1206.85225	n	1000	c**	0.001105		0.0011052
Naphthalene	1160	n	3.8	c*	16800	n	5020	n	17	c*	0.004115	0.00054	-
Butylbenzene, n-	-	-	3900	ns	-	-	-	-	58000	ns	-	3.2	-
Propyl benzene	-	-	3800	ns	-	-	-	-	24000	ns	-	1.2	-
Butylbenzene, sec-	-	-	7800	ns	-	-	-	-	120000	nms	-	5.9	-
Styrene	7264.479096	n	6000	ns	51298.2081	n	10166.3412	n	35000	ns	0.085526	1.3	0.0855262
Butylbenzene, tert-	-	-	7800	ns	-	-	-	-	120000	nms	-	1.6	-
Tetrachloroethene	110.83763	n	24	c**	628.785859	n	119.946456	n	100	c**	0.00199		0.0019899
Toluene	5228.442131	n	4900	ns	61340.2341	n	14041.3366	n	47000	ns	0.555037	0.76	0.5550372
trans-1,2-Dichloroethene	295.4386003	n	1600	n	1610.37937	n	305.259901	n	23000	ns	0.025169	0.11	0.0251692
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethylene	6.774958369	n	0.94	c**	36.4574585	n	6.89887525	n	6	c**	0.001551	0.00018	0.0015508
Trichlorofluoromethane	1231.409945	n	23000	ns	6031.2254	n	1126.65819	n	350000	nms	0.78429	3.3	-
Vinyl chloride	0.741954602	c	0.059	c	28.4135373	c	160.964245	c	1.7	c	0.00067	6.5E-06	0.0006702

Table 3 - Soil Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

Xylenes	870.8212522	n	580	ns	4275.2674	n	798.345553	n	2500	ns	7.717531	0.19	7.7175307
Semi-volatiles (mg/kg)													
1,2,4-Trichlorobenzene	82.90549359	n	-	-	422.891355	n	79.1109174	n	-	-	0.154975	0.0033	0.1549752
1,2-Dichlorobenzene	2149.557119	n	1800	ns	12967.4635	n	2495.84131	n	9300	ns	0.453963	0.3	0.453963
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	1290	c	2.6	c	6730	c	24800	n	11	c	0.056061	0.00046	0.0560611
1-Methylnaphthalene	171.5924997	c	18	c	812.956959	c	6058.73325	c	73	c	0.044656	0.0058	-
2,4,5-Trichlorophenol	6163.458291	n	6300	n	91625.0902	n	26906.2428	n	82000	n	3.310022	4.4	-
2,4,6-Trichlorophenol	61.63458291	n	49	c**	916.250902	n	269.062428	n	210	c**	0.033724	0.015	-
2,4-Dichlorophenol	184.9037487	n	190	n	2748.75271	n	807.187284	n	2500	n	0.041271	0.054	-
2,4-Dimethylphenol	1232.691658	n	1300	n	18325.018	n	5381.24856	n	16000	n	0.322397	0.42	-
2,4-Dinitrophenol	123.2691658	n	130	n	1832.5018	n	538.124856	n	1600	n	0.033428	0.044	-
2,4-Dinitrotoluene	17.0988813	c	1.7	c*	82.2735947	c	535.556259	n	7.4	c	0.002462	0.00032	-
2,6-Dintitrotoluene	3.558669245	c	0.36	c*	17.1537797	c	80.9127625	n	1.5	c	0.000512	0.000067	-
b-Chloronaphthalene	6257.142857	n	4800	n	103822.222	n	28315.1515	n	60000	n	2.850999	3.8	-
2-Chlorophenol	391.0714286	n	390	n	6488.88889	n	1769.69697	n	5800	n	0.057615	0.074	-
2-Methylnaphthalene	231.7975423	n	240	n	3367.96454	n	1004.01865	n	3000	n	0.137851	0.19	-
Cresol, o-	-	-	3200	n	-	-	-	-	41000	n	-	0.75	-
Nitroaniline, 2-	-	-	630	n	-	-	-	-	8000	n	-	0.08	-
2-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3-Dichlorobenzidine	11.83416498	c	1.2	c	57.0096943	c	409.56939	c	5.1	c	0.00621	0.00081	-
3+4-Methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-o-cresol	4.930766633	n	5.1	n	73.3000722	n	21.5249942	n	66	n	0.001989	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitroaniline, 4-	-	-	27	c**	-	-	-	-	110	c*	-	0.0016	-
4-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	3476.963135	n	3600	n	50519.4682	n	15060.2798	n	45000	n	0.001543	5.5	0.0015429
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	-	-	95	c**	-	-	-	-	400	c*	-	0.0046	-
Anthracene	17384.81567	n	18000	n	252597.341	n	75301.399	n	230000	nm	42.53903	58	-
Benzo(a)anthracene	1.530646717	c	1.1	c	32.3	c	239.712408	c	21	c	0.031842	0.0043	-
Benzo(a)pyrene	1.117362054	c	0.11	c	23.5753073	c	172.897367	c	2.1	c	0.176255	0.004	0.1762547
Benzo(b)fluoranthene	1.530646717	c	1.1	c	32.2953975	c	239.712408	c	21	c	0.308604	0.041	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	15.30605168	c	11	c	322.940213	c	2312.63791	c	210	c	3.024274	0.4	-
Benzoic acid	-	-	250000	nm	-	-	-	-	3300000	nm	-	15	-
Benzyl alcohol	-	-	6300	n	-	-	-	-	82000	n	-	0.48	-
Bis(2-chloroethoxy)methane	-	-	190	n	-	-	-	-	2500	n	-	0.013	-
Bis(2-chloroisopropyl) ether	99.31972789	c	-	-	519.111111	c	3539.39394	c	-	-	0.002377	-	-
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate, DEHP]	380.3915288	c	39	c*	1832.49106	c	5381.24856	n	160	c	1.07744	1.3	1.07744
Butyl Benzyl Phthalate	-	-	290	c*	-	-	-	-	1200	c	-	0.23	-
Carbazole	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3 - Soil Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

Chrysene	153.0605168	c	110	c	3229.40213	c	23126.3791	c	2100	c	9.297301	1.2	-
Dibenz(a,h)anthracene	0.15306463	c	0.11	c	3.22953836	c	23.9623983	c	2.1	c	0.098427	0.013	-
Dibenzofuran	-	-	73	n	-	-	-	-	1000	n	-	0.15	-
Diethyl phthalate	49307.66633	n	51000	n	733000.722	n	215249.942	n	660000	nm	4.894328	6.1	-
Dimethyl phthalate (DMP, Phthalic Acid)	61634.58291	n	-	-	916250.902	n	269062.428	n	-	-	0.178474	-	-
Di-n-butyl phthalate (Dibutyl phthalate)	6163.458291	n	6300	n	91625.0902	n	26906.2428	n	82000	n	1.688941	-	-
Di-n-octyl phthalate	-	-	630	n	-	-	-	-	8200	n	-	57	-
Fluoranthene	2317.975423	n	2400	n	33679.6454	n	10040.1865	n	30000	n	66.86188	89	-
Fluorene	2317.975423	n	2400	n	33679.6454	n	10040.1865	n	30000	n	4.002187	5.4	-
Hexachlorobenzene	3.328412568	c	0.21	c	733.000722	n	116.741691	c	0.96	c	0.009474	0.00012	0.0094737
Hexachloro-1,3-butadiene	61.63458291	n	1.2	c*	52.081725	c	269.062428	n	5.3	c	0.002066	0.00026	-
Hexachlorocyclopentadiene	2.304307921	n	1.8	n	5491.92789	n	867.023021	n	7.5	n	0.12024	0.0013	0.1202397
Hexachloroethane	133.1365601	c	1.8	c*	641.375125	n	188.217514	n	8	c*	0.001598	0.0002	-
Indeno(1,2,3-c,d)pyrene	1.530646717	c	1.1	c	32.2953975	c	239.712408	c	21	c	1.004349	0.13	-
Isophorone	5605.803004	c	570	c*	27005.2897	c	53658.312	n	2400	c*	0.211621		
Naphthalene	1160	n	3.8	c*	16800	n	5020	n	17	c*	0.004115	0.00054	-
Nitrobenzene	60.42982743	c	5.1	c*	293.286096	c	352.525062	n	22	c*	0.00072	0.000092	-
N-Nitrosodiphenylamine	1086.819491	c	110	c	5235.62444	c	37855.1115	c	470	c	0.502482	0.066	-
Pentachlorophenol	9.854740573	c	1	c	44.5097584	c	346.199821	c	4	c	0.007612	0.0004	0.0076118
Phenanthrene	1738.481567	n	-	-	25259.7341	n	7530.1399	n	-	-	4.295901	-	-
Phenol	18490.07715	n	19000	n	274861.313	n	77383.595	n	250000	nm	2.616296	3.3	-
Pyrene	1738.481567	n	1800	n	25259.7341	n	7530.1399	n	23000	n	9.591486	13	-
Pyridine	-	-	78	n	-	-	-	-	1200	n	-	0.0068	-
Total Petroleum Hydrocarbons (mg/kg)													
Gasoline Range Organics (GRO)	1000	-	-	-	3800	-	-	-	-	-	-	-	-
Diesel Range Organics (DRO)	1000	-	-	-	3800	-	-	-	-	-	-	-	-
Motor Oil Range Organics (MRO)	1000	-	-	-	3800	-	-	-	-	-	-	-	-

- No screening level available

NMED - New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation (March 2019)

EPA - Environmental Protection Agency Regional Screening Levels (Nov. 2019)

NMED TPH Soil Screening Levels "unknown oil"

c -carcinogen

cs - carcinogenic, SSL may exceed saturation

c* - where: n SL < 100X c SL

c** - where n SL < 10X c SL

n - noncarcinogenic

ns - noncarcinogenic, SSL may exceed saturation

nl - noncarcinogenic, SSL may exceed ceiling limit

nm - concentration may exceed ceiling limit

Table 4 - Groundwater Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL	Screening Levels	Source
Metals (ug/l) TOTAL								
Antimony	6	7.263235	n	7.8	n	6	6	(3)
Arsenic	10	0.855366	c	0.052	c	10	10	(3)
Barium	2000	3277.353	n	3800	n	2000	2000	(3)
Beryllium	4	12.38532	n	25	n	4	4	(3)
Cadmium	5	6.24	n	9.2	n	5	5	(3)
Chromium	50	5.701555	c	22000	n	100	50	(3)
Cobalt	50	5.979008	n	6	n	-	50	(3)
Cyanide	200	1.46442	n	1.5	n	200	200	(3)
Iron	1000	13821.88	n	14000	n	-	1000	(3)
Lead	15	-	-	15	L	15	15	(3)
Manganese	200	2017.4	n	430	n	-	200	(3)
Mercury	2	0.625714	n	0.63	n	2	2	(3)
Nickel	-	371.957	n	200	n	-	372	(4)
Selenium	50	98.72771	n	100	n	50	50	(3)
Silver	50	81.1913	n	94	n	-	50	(3)
Vanadium	-	63.06769	n	86	n	-	63.1	(4)
Zinc	10000	5960.445	n	6000	n	-	10000	(3)
Chloride	250000	-	-	-	-	-	250000	(3)
Fluoride	1600	1184.733	n	800	n	4000	1600	(3)
Sulfate	600000	-	-	-	-	-	600000	(3)
Nitrogen, Nitrate (As N)	10000	31600	n	32000	n	10000	10000	(3)
Nitrogen, Nitrite (As N)	1000	1970	n	2000	n	1000	1000	(3)
Metals (ug/l) DISSOLVED								
Antimony (D)	6	7.263235	n	7.8	n	6	6	(3)
Arsenic (D)	10	0.855366	c	0.052	c	10	10	(3)
Barium (D)	2000	3277.353	n	3800	n	2000	2000	(3)
Beryllium (D)	4	12.38532	n	25	n	4	4	(3)
Cadmium (D)	5	6.24	n	9.2	n	5	5	(3)

Table 4 - Groundwater Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL	Screening Levels	Source
Calcium (D)	-	-	-	-	-	-	-	-
Chromium (D)	50	5.701555	c	22000	n	100	50	(3)
Cobalt (D)	50	5.979008	n	6	n	-	50	(3)
Cyanide (D)	200	1.46442	n	1.5	n	200	200	(3)
Iron (D)	1000	13821.88	n	14000	L	-	1000	(3)
Lead (D)	15	-	-	15	n	15	15	(3)
Magnesium (D)	-	-	-	-	-	-	-	-
Manganese (D)	200	2017.4	n	430	n	-	200	(3)
Nickel (D)	-	371.957	n	200	n	-	372	(4)
Potassium (D)	-	-	-	-	-	-	-	-
Selenium (D)	50	98.72771	n	100	n	50	50	(3)
Sodium (D)	-	-	-	-	-	-	-	-
Silver (D)	50	81.1913	n	94	n	-	50	(3)
Vanadium (D)	-	63.06769	n	86	n	-	63.1	(4)
Zinc (D)	10000	5960.445	n	6000	n	-	10000	(3)
Volatiles (ug/l)								
1,1,1,2-Tetrachloroethane	-	5.737156	c	0.57	c	-	5.74	(4)
1,1,1-Trichloroethane	200	8002.781	n	8000	n	200	200	(3)
1,1,2,2-Tetrachloroethane	10	0.756639	c	0.076	c	-	10	(3)
1,1,2-Trichloroethane	5	0.414843	c	0.28	c**	5	5	(3)
1,1-Dichloroethane	25	27.50549	c	2.8	c	-	25	(3)
1,1-Dichloroethene	7	284.421	n	280	n	7	7	(3)
1,1-Dichloropropene	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	-	-	7	n	-	7	(1)
1,2,4-Trichlorobenzene (V)	70	3.983762	n	1.2	c**	70	70	(3)
1,2,4-Trimethylbenzene	-	-	-	56	n	-	56	(1)
1,2-Dibromoethane (EDB)	0.05	0.074669	c	0.0075	c	0.05	0.05	(3)
1,2-Dichlorobenzene (V)	600	302.4524	n	300	n	600	600	(3)
1,2-Dichloroethane (EDC)	5	1.708649	c	0.17	c*	5	5	(3)

Table 4 - Groundwater Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL	Screening Levels	Source
1,2-Dichloropropane	5	4.376231	c	0.85	c*	5	5	(3)
1,3,5-Trimethylbenzene	-	-	-	60	n	-	60	(1)
1,3-Dichlorobenzene (V)	-	-	-	-	-	-	-	-
1,3-Dichloropropane	-	-	-	370	n	-	370	(1)
1,4-Dichlorobenzene (V)	75	4.818051	c	0.48	c	75	75	(2)
1-Methylnaphthalene (V)	-	11.37539	c	1.1	c	-	11.37	(4)
2,2-Dichloropropane	-	-	-	-	-	-	-	-
2-Butanone	-	5564.701	n	5600	n	-	5564	(4)
2-Chlorotoluene	-	233.1325	-	240	n	-	233	(4)
2-Hexanone	-	-	-	38	n	-	38	(1)
2-Methylnaphthalene (V)	-	35.11469	n	36	n	-	35.11	(4)
4-Chlorotoluene	-	-	-	250	n	-	250	(1)
4-Isopropyltoluene	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	-	1243.433	n	-	-	-	1243	(4)
Acetone	-	14063.57	n	14000	n	-	14063	(4)
Benzene	5	4.552198	c	0.46	c*	5	5	(3)
Bromobenzene	-	-	-	62	n	-	62	(1)
Bromodichloromethane	-	1.34391	c	0.13	c	-	1.34	(4)
Bromoform	-	32.85098	-	3.3	c*	-	32.85	(4)
Bromomethane	-	7.544565	n	7.5	n	-	7.54	(4)
Carbon disulfide	-	809.5351	n	810	n	-	810	(4)
Carbon Tetrachloride	5	4.550271	c	0.46	c	5	5	(3)
Chlorobenzene	-	77.57247	n	78	n	100	100	(2)
Chloroethane	-	20857.14	n	-	-	-	20900	(4)
Chloroform	100	2.293155	c	0.22	c	-	100	(3)
Chloromethane	-	20.31275	c	190	n	-	20.3	(4)
cis-1,2-DCE	70	36.4848	n	36	n	70	70	(3)
cis-1,3-Dichloropropene	-	4.708265	c	0.47	c	-	4.71	(4)
Dibromochloromethane	-	1.678071	c	0.87	c	-	1.68	(4)

Table 4 - Groundwater Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL	Screening Levels	Source
Dibromomethane	-	-	-	8.3	n	-	8.3	(1)
Dichlorodifluoromethane	-	197.2025	n	200	n	-	197	(4)
Ethylbenzene	700	14.99225	c	1.5	c	700	700	(3)
Hexachlorobutadiene (V)	-	1.387235	c	0.14	c*	-	1.39	(4)
Isopropylbenzene	-	446.8488	n	450	n	-	447	(4)
Methyl tert-butyl ether (MTBE)	100	142.9942	c	14	c	-	100	(4)
Methylene Chloride	5	117.9703	c	11	c**	5	5	(3)
Naphthalene (V)	30	1.651584	c	0.17	c*	-	30	(3)
n-Butylbenzene	-	-	-	1000	-	-	1000	(1)
n-Propylbenzene	-	-	-	660	-	-	660	(1)
sec-Butylbenzene	-	-	-	2000	-	-	2000	(1)
Styrene	100	1205.035	n	1200	n	100	100	(3)
tert-Butylbenzene	-	-	-	690	n	-	690	(1)
Tetrachloroethene (PCE)	5	112.9005	c	11	c**	5	5	(3)
Toluene	1000	1093.245	n	1100	n	1000	1000	(3)
trans-1,2-DCE	100	93.18158	n	360	n	100	100	(3)
trans-1,3-Dichloropropene	-	4.708265	c	0.47	c*	-	4.71	(4)
Trichloroethene (TCE)	5	2.591925	c	0.49	c**	5	5	(3)
Trichlorofluoromethane	-	1136.825	n	5200	n	-	1140	(4)
Vinyl chloride	2	0.323527	c	0.019	c	2	2	(3)
Xylenes, Total	620	192.995	n	190	n	10000	620	(3)
Semivolatiles (ug/l)								
1,2,4-Trichlorobenzene	-	11.54803	c	1.2	c	70	70	(2)
1,2-Dichlorobenzene	600	370.1408	n	300	n	600	600	(3)
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	75	4.818051	c	0.48	c	75	75	(3)
1-Methylnaphthalene	-	11.37539	c	1.1	c	-	11.38	(4)
2,4,5-Trichlorophenol	-	1165.977	n	1200	n	-	1166	(4)
2,4,6-Trichlorophenol	-	11.87956	n	4.1	c**	-	11.9	(4)

Table 4 - Groundwater Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL	Screening Levels	Source
2,4-Dichlorophenol	-	45.3006	n	46	n	-	45.3	(4)
2,4-Dimethylphenol	-	353.8786	n	360	n	-	354	(4)
2,4-Dinitrophenol	-	38.66536	n	39	n	-	38.7	(4)
2,4-Dinitrotoluene	-	2.36907	c	0.24	c	-	2.37	(4)
2,6-Dinitrotoluene	-	0.48538	n	0.049	c	-	0.485	(4)
2-Chloronaphthalene	-	732.5619	n	750	n	-	733	(4)
2-Chlorophenol	-	90.99948	n	91	n	-	91	(4)
2-Methylnaphthalene	-	35.11469	n	36	n	-	35.11	(4)
2-Methylphenol	-	-	-	930	n	-	930	(1)
2-Nitroaniline	-	-	-	190	n	-	190	(1)
2-Nitrophenol	-	-	-	-	-	-	-	-
3,3´-Dichlorobenzidine	-	1.252389	c	0.13	c	-	1.25	(4)
3+4-Methylphenol	-	-	-	930	n	-	930	(1)
3-Nitroaniline	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	-	1.52438	n	-	-	-	1.52	(4)
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	-	3.8	c*	-	38	(5)
4-Nitrophenol	-	-	-	-	-	-	-	-
Acenaphthene	-	534.6011	n	530	n	-	535	(4)
Acenaphthylene	-	-	-	-	-	-	-	-
Aniline	-	-	-	13	c*	-	130	(5)
Anthracene	-	1721.281	n	1800	n	-	1721	(4)
Benz(a)anthracene	-	0.119923	c	0.03	c	-	0.12	(4)
Benzo(a)pyrene	0.2	0.250515	c	0.025	c	0.2	0.2	(3)
Benzo(b)fluoranthene	-	0.343171	c	0.25	c	-	0.343	(4)
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	3.431709	c	2.5	c	-	3.43	(4)

Table 4 - Groundwater Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL	Screening Levels	Source
Benzoic acid	-	-	-	75000	n	-	75000	(1)
Benzyl alcohol	-	-	-	2000	n	-	2000	(1)
Bis(2-chloroethoxy)methane	-	-	-	59	n	-	59	(1)
Bis(2-chloroisopropyl)ether	-	9.809669	c	-	-	-	9.81	(4)
Bis(2-ethylhexyl)phthalate	-	55.64024	c	5.6	c*	6	6	(2)
Butyl benzyl phthalate	-	-	-	16	c	-	160	(5)
Carbazole	-	-	-	-	-	-	-	-
Chrysene	-	34.31709	c	25	c	-	34.3	(4)
Dibenz(a,h)anthracene	-	0.034317	c	0.025	c	-	0.0343	(4)
Dibenzofuran	-	-	-	7.9	n	-	7.9	(1)
Diethyl phthalate	-	14800.52	n	15000	n	-	14800	(4)
Dimethyl phthalate	-	611.5601	n	-	-	-	611.56	(4)
Di-n-butyl phthalate	-	884.7986	n	-	-	-	885	(4)
Di-n-octyl phthalate	-	-	-	200	n	-	200	(1)
Fluoranthene	-	802.1978	n	800	n	-	802	(4)
Fluorene	-	287.642	n	290	n	-	288	(4)
Hexachlorobenzene	-	0.097601	c	0.0098	c	1	1	(2)
Hexachlorobutadiene	-	1.387235	c	0.14	c*	-	1.39	(4)
Hexachlorocyclopentadiene	-	0.410975	n	0.41	n	50	50	(2)
Hexachloroethane	-	3.284195	c	0.33	c**	-	3.28	(4)
Indeno(1,2,3-cd)pyrene	-	0.343171	c	0.25	c	-	0.343	(4)
Isophorone	-	780.6306	c	78	c	-	780.63	(4)
Naphthalene	30	1.651584	c	0.17	c*	-	30	(3)
Nitrobenzene	-	1.403846	c	0.14	c	-	1.4	(4)
N-Nitrosodiphenylamine	-	121.9219	c	12	c	-	121.92193	(4)
Phenanthrene	-	170.4146	n	-	-	-	170	(4)
Pentachlorophenol	1	0.412922	c	0.041	c	1	1	(3)
Phenol	-	5761.054	n	5800	n	-	5760	(4)
Pyrene	-	117.4227	n	120	n	-	117	(4)

Table 4 - Groundwater Screening Levels
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL	Screening Levels	Source
Pyridine	-	-	-	20	n	-	20	(1)
TPH (ug/l)								
Gasoline Range Organics (GRO)	-	-	-	-	-	-	10.1	(7)
Diesel Range Organics (DRO)	-	-	-	-	-	-	85.8	(6)
Motor Oil Range Organics (MRO)	-	-	-	-	-	-	85.8	(6)

- No screening level or analytical result available

450 - bolded value exceeds screening level

(1) EPA - Regional Screening Levels (November 2019) -Tap Water

(2) EPA - Regional Screening Levels (November 2019) - MCL

(3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)

(4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (March 2019)

(5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds

(6) NMED Soil Screening Guidance - "unknown oil" (March 2019)

(7) NMED Soil Screening Guidance - "gasoline" (March 2019)

Table 5 - Soil Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

NMED constitutent name	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SL-1 (0-0.5')	SL-1 (2-2.5')	SL-1 (6-8')	SL-1 (12-14')	SL-2 (0-0.5')	SL-2 (2-2.5')	SL-2 (2.5-4')	SL-2 (6-8')	SL-2 (14-16')	SL-3 (0-0.5')	SL-3 (2-2.5')	SL-3 (6-8')	SL-3 (14-16')	SL-4 (0-0.5')	SL-4 (2-2.5')	SL-4 (6-8')	SL-4 (14-16')	SL-5 (0-0.5')	SL-5 (2-2.5')
					Lab ID		1910e91-001	1910e91-002	1910e91-003	1910e91-004	1910f75-001	1910f75-002	1910f75-003	1910f75-004	1910f75-005	1910f75-006	1910f75-007	1910f75-008	1910f75-009	1910g04-001	1910g04-002	1910g04-003	1910g04-004	1910g04-005	1910g04-007
					Sample Date		10/28/2019	10/28/2019	10/28/2019	10/28/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/30/2019	10/30/2019	10/30/2019	10/30/2019	10/30/2019	10/30/2019
Metals (mg/kg)																									
Antimony	3.13E+01	(1)	1.42E+02	(5)	5.42E+00	(10)	< 0.7461 u	< 0.7136 u	< 0.7334 u	< 0.7412 u	< 0.7406 u	< 0.7498 u	< 0.7069 u	< 0.7102 u	< 0.7484 u	< 0.7696 u	< 0.7577 u	< 0.7379 u	< 0.7399 u	< 0.7377 u	< 0.7501 u	< 0.7057 u	< 0.7464 u	< 0.7239 u	< 0.7628 u
Arsenic	7.07E+00	(1)	3.59E+01	(4)	5.83E+00	(8)	3.7 J	< 2.768 u	< 2.8447 u	< 2.875 u	3.1 J	< 2.9084 u	< 2.742 u	< 2.7549 u	< 2.9028 u	< 2.985 u	< 2.9389 u	< 2.8621 u	< 2.8698 u	< 2.8615 u	< 2.9096 u	< 2.7375 u	< 2.8951 u	< 2.808 u	< 2.9587 u
Barium	1.56E+04	(1)	4.39E+03	(5)	1.65E+03	(10)	340 v	220 v	170 v	250 v	500 v	140 v	280 v	220 v	220 v	450 v	200 v	200 v	100 v	330 v	290 v	130 v	250 v	290 v	280 v
Beryllium	1.56E+02	(1)	1.48E+02	(5)	6.32E+01	(10)	0.95 v	1 v	0.79 v	0.98 v	1 v	0.97 v	0.74 v	0.87 v	0.93 v	1.4 v	0.89 v	0.83 v	0.91 v	1 v	0.81 v	0.93 v	0.94 v	0.83 v	0.88 v
Cadmium	7.05E+01	(1)	7.21E+01	(5)	7.52E+00	(10)	< 0.0492 u	< 0.0471 u	< 0.0484 u	< 0.0489 u	< 0.0489 u	< 0.0495 u	< 0.0466 u	< 0.0469 u	< 0.0494 u	< 0.0508 u	< 0.05 u	< 0.0487 u	< 0.0488 u	< 0.0487 u	< 0.0495 u	< 0.0466 u	< 0.0492 u	< 0.0478 u	< 0.0503 u
Chromium (Total)	9.66E+01	(1)	1.34E+02	(5)	3.60E+06	(10)	11 v	8.3 v	6.2 v	11 v	9.8 v	7.5 v	5.8 v	7.2 v	11 v	8.7 v	7.8 v	7.2 v	11 v	10 v	6.9 v	6.3 v	13 v	8 v	7.4 v
Hexavalent Chromium	3.05E+00	(1)	6.69E+01	(5)	3.60E+06	(10)	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u	< 1 u
Cobalt	2.34E+01	(1)	3.67E+01	(5)	5.40E+00	(8)	4.1 v	4.6 v	3.6 v	5 v	3.9 v	4.5 v	3.3 v	3.6 v	5.7 v	2.6 v	4.3 v	3.9 v	5.7 v	4.6 v	3.8 v	4.2 v	6 v	3.2 v	3.9 v
Iron	5.48E+04	(1)	2.48E+05	(5)	6.96E+03	(8)	13000 v	13000 v	11000 v	17000 v	13000 v	13000 v	11000 v	12000 v	17000 v	11000 v	13000 v	12000 v	18000 v	14000 v	11000 v	11000 v	17000 v	11000 v	12000 v
Lead	4.00E+02	(2)	8.00E+02	(6)	5.20E-02	(10)	17 v	5.7 v	3 v	2.2 v	8.8 v	5.5 v	3.8 v	2.8 v	3.2 v	9.3 v	4.4 v	3.6 v	2.4 v	7.2 v	4.9 v	6.1 v	0.57 v	5.9 v	3.3 v
Manganese	1.05E+04	(1)	4.64E+02	(5)	2.63E+03	(8)	330 v	250 v	250 v	660 v	140 v	280 v	230 v	250 v	750 v	300 v	250 v	240 v	390 v	180 v	240 v	340 v	500 v	89 v	160 v
Mercury (elemental)	2.38E+01	(1)	2.07E+01	(5)	2.09E+00	(8)	0.32 v	0.0025 J	0.0021 J	0.0024 J	0.058 v	0.0086 J	0.0059 J	0.0021 J	< 0.0018 u	0.025 J	0.0072 J	< 0.0018 u	< 0.0018 u	0.2 v	0.029 J	0.0057 J	0.0037 J	0.039 v	0.0064 J
Nickel	1.56E+03	(1)	7.53E+02	(5)	4.85E+02	(8)	8.3 v	8.4 v	6.5 v	12 v	9 v	8.6 v	6.3 v	7.5 v	14 v	5.9 v	8 v	7.1 v	15 v	9.1 v	7.1 v	7.6 v	15 v	7.2 v	7.2 v
Selenium	3.91E+02	(1)	1.75E+03	(5)	5.17E+00	(10)	< 2.5456 u	< 2.4348 u	< 2.5022 u	< 2.5289 u	< 2.5269 u	< 2.5583 u	< 2.4119 u	< 2.4233 u	< 2.5533 u	< 2.6257 u	< 2.5851 u	< 2.5175 u	< 2.5243 u	< 2.4013 u	< 2.6031 u	< 2.4079 u	< 2.4133 u	< 2.47 u	< 2.6025 u
Silver	3.91E+02	(1)	1.77E+03	(5)	1.38E+01	(8)	< 0.065 u	< 0.0622 u	< 0.0639 u	< 0.0646 u	< 0.0645 u	< 0.0653 u	< 0.0616 u	< 0.0619 u	< 0.0652 u	< 0.067 u	< 0.066 u	< 0.0643 u	< 0.0645 u	< 0.0643 u	< 0.0654 u	< 0.0615 u	< 0.065 u	< 0.0631 u	< 0.0665 u
Vanadium	3.94E+02	(1)	6.14E+02	(5)	1.26E+03	(8)	18 v	15 v	13 v	15 v	18 v	15 v	13 v	14 v	12 v	27 v	16 v	17 v	13 v	16 v	15 v	11 v	14 v	13 v	15 v
Zinc	2.35E+04	(1)	1.06E+05	(5)	7.41E+03	(8)	85 v	17 v	11 v	16 v	75 v	14 v	10 v	13 v	16 v	36 v	12 v	11 v	16 v	41 v	14 v	12 v	16 v	26 v	12 v
Non-Metals (mg/kg)																									
Cyanide	1.12E+01	(1)	1.21E+01	(5)	7.13E-01	(8)	0.61 v	< 0.25 u	< 0.25 u	< 0.25 u	0.33 v	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u	< 0.25 u
chloride	1.20E+07	(1)	1.59E+07	(5)	-	-	450 v	96 v	66 v	40 v	340 v	44 v	24 v	19 v	7.6 v	15 v	180 v	17 v	< 7.5 u	94 v	130 v	21 v	9.4 v	64 v	45 v
fluoride	4.69E+03	(1)	1.81E+04	(5)	1.20E+04	(8)	4 v	5 v	< 1.5045 u	< 1.4985 u	1.6 v	4 v	3.7 v	2.3 v	< 1.494 u	3.7 v	2.7 v	4.1 v	< 1.5 u	3.2 v	3.1 v	4.2 v	1.7 v	2.9 v	2.6 v
sulfate	-	-	-	-	-	-	1800 v	230 v	18 v	25 v	3000 v	380 v	68 v	43 v	38 v	140 v	780 v	63 v	35 v	550 v	570 v	76 v	78 v	140 v	280 v
Nitrogen, Nitrate (As N)	1.25E+05	(1)	5.66E+05	(5)	4.25E+02	(8)	6.9 v	< 1.5 u	< 1.5045 u	< 1.4985 u	22 v	21 v	< 1.4925 u	< 1.494 u	< 1.494 u	13 v	< 1.506 u	< 1.506 u	< 1.5 u	12 v	52 v	< 1.5075 u	< 1.503 u	25 v	25 v
Nitrogen, Nitrite (As N)	7.82E+03	(1)	3.54E+04	(5)	2.66E+01	(8)	< 1.5075 u	< 1.5 u	< 1.5045 u	< 1.4985 u	< 1.5 u	< 1.497 u	< 1.4925 u	< 1.494 u	< 1.494 u	< 1.5 u	< 1.506 u	< 1.506 u	< 1.5 u	< 1.4925 u	< 1.506 u	< 1.5075 u	< 1.503 u	< 1.5075 u	< 1.4955 u
Volatiles (mg/kg)																									
1,1,1,2-Tetrachloroethane	2.81E+01	(1)	1.37E+02	(4)	3.60E-02	(8)	< 0.0028 u	< 0.002 u	< 0.0021 u	< 0.0021 u	< 0.0029 u	< 0.0019 u	< 0.002 u	< 0.0018 u	< 0.0024 u	< 0.0029 u	< 0.0021 u	< 0.0016 u	< 0.0019 u	< 0.0024 u	< 0.002 u	< 0.0015 u	< 0.002 u	< 0.0022 u	< 0.0017 u
1,1,1-Trichloroethane	1.44E+04	(1)	1.36E+04	(5)	1.28E+00	(10)	< 0.0038 u	< 0.0026 u	< 0.0028 u	< 0.0028 u	< 0.0039 u	< 0.0025 u	< 0.0027 u	< 0.0024 u	< 0.0032 u	< 0.0038 u	< 0.0028 u	< 0.0022 u	< 0.0025 u	< 0.0032 u	< 0.0027 u	< 0.0021 u	< 0.0026 u	< 0.003 u	< 0.0023 u
1,1,2,2-Tetrachloroethane	7.98E+00	(1)	3.94E+01	(4)	4.81E-03	(8)	< 0.0043 u	< 0.0029 u	< 0.0031 u	< 0.0031 u	< 0.0044 u	< 0.0028 u	< 0.003 u	< 0.0027 u	< 0.0036 u	< 0.0043 u	< 0.0032 u	< 0.0025 u	< 0.0029 u	< 0.0036 u	< 0.0031 u	< 0.0023 u	< 0.003 u	< 0.0033 u	< 0.0026 u
1,1,2-Trichloroethane	2.61E+00	(1)	2.30E+00	(5)	2.68E-02	(8)	< 0.003 u	< 0.002 u	< 0.0022 u	< 0.0022 u	< 0.003 u	< 0.002 u	< 0.0021 u	< 0.0019 u	< 0.0025 u	< 0.003 u	< 0.0022 u	< 0.0017 u	< 0.002 u	< 0.0025 u	< 0.0021 u	< 0.0016 u	< 0.0021 u	< 0.0023 u	< 0.0018 u
1,1-Dichloroethane	7.86E+01	(1)	3.83E+02	(4)	1.36E-01	(8)	< 0.0027 u	< 0.0019 u	< 0.002 u	< 0.002 u	< 0.0028 u	< 0.0018 u	< 0.0019 u	< 0.0017 u	< 0.0022 u	< 0.0027 u	< 0.002 u	< 0.0016 u	< 0.0018 u	< 0.0022 u	< 0.0019 u	< 0.0015 u	< 0.0019 u	< 0.0021 u	< 0.0016 u
1,1-Dichloroethene	4.40E+02	(1)	4.24E+02	(5)	4.79E-02	(10)	< 0.0169 u	< 0.0116 u	< 0.0123 u	< 0.0124 u	< 0.0172 u	< 0.0112 u	< 0.0119 u	< 0.0108 u	< 0.0141 u	< 0.017 u	< 0.0124 u	< 0.0097 u	< 0.0113 u	< 0.0141 u	< 0.0121 u	< 0.0092 u	< 0.0117 u	< 0.0131 u	< 0.0101 u
1,1-Dichloropropene	-	-	-	-	-	-	< 0.0038 u	< 0.0026 u	< 0.0028 u	< 0.0028 u	< 0.0039 u	< 0.0026 u	< 0.0027 u	< 0.0025 u	< 0.0032 u	< 0.0039 u	< 0.0028 u	< 0.0022 u	< 0.0026 u	< 0.0032 u	< 0.0028 u	< 0.0021 u	< 0.0027 u	< 0.003 u	< 0.0023 u
Trichlorobenzene, 1,2,3-	6.30E+01	(2)	9.30E+02	(6)	4.20E-01	(9)	< 0.0037 u	< 0.0025 u	< 0.0027 u	< 0.0027 u	< 0.0038 u	< 0.0025 u	< 0.0026 u	< 0.0024 u	< 0.0031 u	< 0.0037 u	< 0.0027 u	< 0.0021 u	< 0.0025 u	< 0.0031 u	< 0.0027 u	< 0.002 u	< 0.0026 u	< 0.0029 u	< 0.0022 u
1,2,3-Trichloropropane	5.10E-02	(1)	1.21E+00	(4)	5.82E-05	(8)	< 0.0068 u	< 0.0047 u	< 0.005 u	< 0.005 u	< 0.007 u	< 0.0045 u	< 0.0048 u	< 0.0044 u	< 0.0057 u	< 0.0069 u	< 0.005 u	< 0.0039 u	< 0.0046 u	< 0.0057 u	< 0.0049 u	< 0.0037 u	< 0.0047 u	< 0.0053 u	< 0.0041 u
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	3.10E+00	(8)	< 0.0043 u	< 0.0029 u	< 0.0031 u	< 0.0031 u	< 0.0044 u	< 0.0028 u	< 0.003 u	< 0.0027 u	< 0.0036 u	< 0.0043 u	< 0.0031 u	< 0.0025 u	< 0.0028 u	< 0.0036 u	< 0.0031 u	< 0.0023 u	< 0.0029 u	< 0.0033 u	< 0.0026 u
Trimethylbenzene, 1,2,4-	3.00E+02	(2)	1.80E+03	(6)	1.62E+00	(9)	0.013 J	2.2 v	0.0085 J	< 0.0028 u	< 0.0039 u	< 0.0026 u	< 0.0027 u	< 0.0025 u	< 0.0032 u	< 0.0039 u	< 0.0028 u	< 0.0022 u	< 0.0026 u	< 0.0032 u	< 0.0028 u	< 0.0021 u	< 0.0027 u	< 0.003 u	< 0.0023 u
1,2-Dibromo-3-chloropropane	8.58E-02	(1)	1.18E+00	(4)	1.39E-03	(8)	< 0.0043 u	< 0.003 u	< 0.0032 u	< 0.0032 u	< 0.0044 u	< 0.0029 u	< 0.003 u	< 0.0028 u	< 0.0036 u	< 0.0043 u	< 0.0032 u	< 0.0025 u	< 0.0029 u	< 0.0036 u	< 0.0031 u	< 0.0024 u	< 0.003 u	< 0.0034 u	< 0.0026 u
1,2-Dibromoethane (Ethylene dibromide)	6.72E-01	(1)	3.31E+00	(4)	2.36E-04	(10)	< 0.0038 u	< 0.0026 u	< 0.0028 u	< 0.0028 u	< 0.0039 u	< 0.0026 u	< 0.0027 u	< 0.0025 u	< 0.0032 u	< 0.0039 u	< 0.0028 u	< 0.0022 u	< 0.0026 u	< 0.0032 u	< 0.0028 u	< 0.0021 u	< 0.0027 u	< 0.003 u	< 0.0023 u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	9.08E+00	(8)	< 0.0035 u	< 0.0024 u	< 0.0025 u	< 0.0025 u	< 0.0035 u	< 0.0023 u	< 0.0024 u	< 0.0022 u	< 0.0029 u	< 0.0035 u	< 0.0026 u	< 0.002 u	< 0.0023 u	< 0.0029 u	< 0.0025 u	< 0.0019 u	< 0.0024 u	< 0.0027 u	< 0.0021 u
1,2-Dichloroethane	8.32E+00	(1)	4.07E+01	(4)	2.38E-02	(8)	< 0.0043 u	< 0.003 u	< 0.0031 u	< 0.0032 u	< 0.0044 u	< 0.0029 u	< 0.003 u	< 0.0028 u	< 0.0036 u	< 0.0043 u	< 0.0032 u	< 0.0025 u	< 0.0029 u	< 0.0036 u	< 0.0031 u	< 0.0023 u	< 0.003 u	< 0.0033 u	< 0.0026 u
1,2-Dichloropropane	1.78E+01	(1)	2.54E+01	(5)	2.77E-02	(8)	< 0.0031 u	< 0.0021 u	< 0.0022 u	< 0.0023 u	< 0.0031 u	< 0.002 u	< 0.0022 u	< 0.002 u	< 0.0026 u	< 0.0031 u	< 0.0023 u	< 0.0018 u	< 0.0021 u	< 0.0026 u	< 0.0022 u	< 0.0017 u	< 0.0021 u	< 0.0024 u	< 0.0018 u
Trimethylbenzene, 1,3,5-	2.70E+02	(2)	1.50E+03	(6)	1.74E+00	(9)	< 0.0041 u	0.43 v	< 0.003 u	< 0.003 u	< 0.0042 u	< 0.0027 u	< 0.0029 u	< 0.0026 u	< 0.0034 u	< 0.0041 u	< 0.003 u	< 0.0023 u	< 0.0027 u	< 0.0034 u	< 0.0029 u	< 0.0022 u	< 0.0028 u	< 0.0032 u	< 0.0024 u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.0037 u	< 0.0025 u	< 0.0027 u	< 0.0027 u	< 0.0037 u	< 0.0024 u	< 0.0026 u	< 0.0024 u	< 0.0031 u	< 0.0037 u	< 0.0027 u	< 0.0021 u	< 0.0024 u	< 0.0031 u	< 0.0026 u	< 0.002 u	< 0.0025 u	< 0.0028 u	< 0.0022 u
Dichloropropane, 1,3-	1.60E+03	(2)	2.30E+04	(6)	2.60E+00	(9)	< 0.0046 u	< 0.0031 u	< 0.0033 u	< 0.0034 u	< 0.0047 u	< 0.003 u	< 0.0032 u	< 0.0029 u	< 0.0038 u	< 0.0046 u	< 0.0034 u	< 0.0026 u	< 0.003 u	< 0.0038 u	< 0.0033 u	< 0.0025 u	< 0.0032 u	< 0.0035 u	< 0.0027 u
1,4-Dichlorobenzene	1.29E+03	(1)	6.73E+03	(4)	1.12E+00	(8)	0.02 J	< 0.0024 u	< 0.0026 u	< 0.0026 u	< 0.0036 u	< 0.0023 u	< 0.0025 u	< 0.0023 u	< 0.0029 u	< 0.0035 u	< 0.0026 u	< 0.002 u	< 0.0024 u	< 0.0029 u	< 0.0025 u	< 0.0019 u	< 0.0024 u	< 0.0027 u	< 0.0021 u
1-Methylnaphthalene	1.72E+02	(1)	8.13E+02	(4)	8.93E-01	(8)	0.031 J	0.19 v	0.019 J	< 0.0178 u	< 0.0248 u	< 0.0162 u	< 0.0171 u	< 0.0156 u	< 0.0202 u	< 0.0244 u	< 0.0179 u	< 0.014 u	< 0.0162 u	< 0.0202 u	< 0.0175 u	< 0.0132 u	< 0.0168 u	< 0.0188 u	< 0.0145 u
2,2-Dichloropropane	-	-	-	-	-	-	< 0.0137 u	< 0.0094 u	< 0.01 u	< 0.0101 u	< 0.014 u	< 0.0091 u	< 0.0097 u	< 0.0088 u	< 0.0114 u	< 0.0138 u	< 0.0101 u	< 0.0079 u	< 0.0092 u	< 0.0114 u	< 0.0099 u	< 0.0075 u	< 0.0095 u	< 0.0106 u	< 0.0082 u
2-Butanone (Methyl ethyl ketone, MEK)	3.74E+04	(1)	9.17E+04	(5)	2.01E+01	(8)	0.063 J	< 0.0336 u	0.07 J	< 0.0358 u	< 0.0498 u	0.036 J	0.064 J	< 0.0314 u	0.062 J	0.062 J	< 0.036 u	< 0.0281 u	0.068 J	0.065 J	0.04 J	< 0.0265 u	0.045 J	< 0.0379 u	< 0.0292 u
o-Chlorotoluene	1.56E+03	(1)	7.08E+03	(5)	3.56E+00	(8)	< 0.0037 u	< 0.0025 u	< 0.0027 u	< 0.0027 u	< 0.0037 u	< 0.0024 u	< 0.0026 u	< 0.0024 u	< 0.0031 u	< 0.0037 u	< 0.0027 u	< 0.0021 u	< 0.0025 u	< 0.0031 u	< 0.0026 u	< 0.002 u	< 0.0025 u	< 0.0028 u	< 0.0022 u
Hexanone, 2-	2.00E+02	(2)	1.30E+03	(6)	1.76E-01	(9)	< 0.007 u	< 0.0048 u	< 0.0051 u	< 0.0051 u	< 0.0072 u	< 0.0047 u	< 0.0049 u	< 0.0045 u	< 0.0058 u	< 0.007 u	< 0.0052 u	< 0.004 u	< 0.0047 u	< 0.0058 u	< 0.005 u	< 0.0038 u	< 0.0048 u	< 0.0054 u	< 0.0042 u
2-Methylnaphthalene	2.32E+02	(1)	1.00E+03	(5)	2.76E+00	(8)	0.023 J	0.04 J	< 0.0134 u	< 0.0135 u	< 0.0188 u	< 0.0123 u	< 0.013 u	< 0.0118 u	< 0.0154 u	< 0.0185 u	< 0.0136 u	< 0.0106 u	< 0.0123 u	< 0.0154 u	< 0.0133 u	< 0.01 u	< 0.0127 u	< 0.0143 u	< 0.011 u
Chlorotoluene, p-	1.60E+03	(2)	2.30E+04	(6)	4.80E+00	(9)	< 0.0035 u	< 0.0024 u	< 0.0025 u	< 0.0025 u	< 0.0035 u	< 0.0023 u	< 0.0024 u	< 0.0022 u	< 0.0029 u	< 0.0035 u	< 0.0025 u	< 0.002 u	< 0.0023 u	< 0.0029 u	< 0.0025 u	< 0.0019 u	< 0.0024 u	< 0.0027 u	< 0.0021 u
4-Isopropyltoluene	-	-	-	-	-	-	< 0.0035 u	0.12 v	< 0.0025 u	< 0.0026 u	< 0.0036 u	< 0.0023 u	< 0.0025 u	< 0.0022 u	< 0.0029 u	< 0.0035 u	< 0.0026 u	< 0.002 u	< 0.0023 u	< 0.0029 u	< 0.0025 u	< 0.0019 u	< 0.0024 u	< 0.0027 u	< 0.0021 u
Methyl isobutyl ketone	5.81E+03	(1)	2.02E+04	(5)	4.80E+00	(8)	< 0.008 u	< 0.0055 u	< 0.0058 u	< 0.0059 u	< 0.0081 u	< 0.0053 u	< 0.0056 u	< 0.0051 u	< 0.0066 u	< 0.008 u	< 0.0059 u	< 0.0046 u	< 0.0053 u	< 0.0066 u	< 0.0057 u	< 0.0043 u	< 0.0055 u	< 0.0062 u	< 0.0048 u
Acetone	6.63E+04	(1)	2.42E+05	(5)	4.98E+01	(8)	< 0.035 u	< 0.0241 u	< 0.0255 u	< 0.0257 u	< 0.0357 u	< 0.0233 u	< 0.0246 u	< 0.0225 u	< 0.0291 u	< 0.0351 u	< 0.0258 u	< 0.0201 u	< 0.0234 u	< 0.0291 u	< 0.0252 u	< 0.019 u	< 0.0242 u	< 0.0271 u	< 0.0209 u
Benzene	1.78E+01	(1)	8.72E+01	(4)	4.18E-02	(8)	< 0.0035 u	0.023 v	0.0048 J	< 0.0025 u	< 0.0035 u	< 0.0023 u	< 0.0024 u	< 0.0022 u	< 0.0029 u	< 0.0035 u	< 0.0025 u	< 0.002 u	< 0.0023 u	< 0.0029 u	< 0.0025 u	< 0.0019 u	< 0.0024 u	< 0.0027 u	< 0.0021 u
Bromobenzene	2.90E+02	(2)	1.80E+03	(6)	8.40E-01	(9)	< 0.004 u	< 0.0028 u	< 0.003 u	< 0.003 u	< 0.0041 u	< 0.0027 u	< 0.0028 u	< 0.0026 u	< 0.0034 u	< 0.0041 u	< 0.003 u	< 0.0023 u	< 0.0027 u	< 0.0034 u	< 0.0029 u	< 0.0022 u	< 0.0028 u	< 0.0031 u	< 0.0024 u
Bromodichloromethane	6.19E+00	(1)	3.02E+01	(4)	6.21E-03	(8)	< 0.0038 u	< 0.0026 u	< 0.0028 u	< 0.0028 u	< 0.0039 u	< 0.0026 u	< 0.0027 u	< 0.0025 u	< 0.0032 u	< 0.0039 u	< 0.0028 u	< 0.0022 u	< 0.0026 u	< 0.0032 u	< 0.0028 u	< 0.0021 u	< 0.0027 u	< 0.003 u	< 0.0023 u
Tribromomethane (Bromoform)	6.74E+02	(1)	1.76E+03	(4)	1.47E-01	(8)	< 0.0038 u	< 0.0026 u	< 0.0028 u	< 0.0028 u	< 0.0039 u	< 0.0025 u	< 0.0027 u	< 0.0024 u	< 0.0032 u	< 0.0038 u	< 0.0028 u	< 0.0022 u	< 0.0025 u	< 0.0032 u	< 0.0027 u	< 0.0021 u	< 0.0026 u	< 0.003 u	< 0.0023 u
Bromomethane	1.77E+01	(1)	1.79E+01	(5)	3.43E-02	(8)	< 0.0102 u	< 0.007 u	< 0.0074 u	< 0.0075 u	< 0.0104 u	< 0.0068 u	< 0.0072 u	< 0.0065 u	< 0.0085 u	< 0.0102 u	< 0.0075 u	< 0.0059 u	< 0.0068 u	< 0.0085 u	< 0.0073 u	< 0.0055 u	< 0.007 u	< 0.0079 u	< 0.0061 u
Carbon disulfide	1.55E+03	(1)	1.62E+03	(5)	4.42E+00	(8)	< 0.0139 u	< 0.0096 u	< 0.0102 u	< 0.0102 u	< 0.0142 u	< 0.0093 u	< 0.0098 u	< 0.0089 u	< 0.0116 u	< 0.014 u	< 0.0103 u	< 0.008 u	< 0.0093 u	< 0.0116 u	< 0.01 u	< 0.0076 u	< 0.0096 u	< 0.0108 u	< 0.0083 u
Carbon tetrachloride	1.07E+01	(1)	5.25E+01	(4)	3.67E-02	(8)	< 0.004 u	< 0.0028 u	< 0.0029 u	< 0.0029 u	< 0.0041 u	< 0.0027 u	< 0.0028 u	< 0.0026 u	< 0.0033 u	< 0.004 u	< 0.0029 u	< 0.0023 u	< 0.0027 u	< 0.0033 u	< 0.0029 u	< 0.0022 u	< 0.0028 u	< 0.0031 u	< 0.0024 u
Chlorobenzene (Monochlorobenzene	3.78E+02	(1)	4.12E+02	(5)	1.08E+00	(8)	< 0.0054 u	< 0.0037 u	< 0.0039 u	< 0.004 u	< 0.0055 u	< 0.0036 u	< 0.0038 u	< 0.0035 u	< 0.0045 u	< 0.0054 u	< 0.004 u	< 0.0031 u	< 0.0036 u	< 0.0045 u	< 0.0039 u	< 0.0029 u	< 0.0037 u	< 0.0042 u	< 0.0032 u
Ethyl chloride	1.90E+04	(1)	1.66E+04	(5)	1.07E+02	(8)	< 0.0062 u	< 0.0043 u	< 0.0045 u	< 0.0046 u	< 0.0063 u	< 0.0041 u	< 0.0044 u	< 0.004 u	< 0.0052 u	< 0.0062 u	< 0.0046 u	< 0.0036 u	< 0.0042 u	< 0.0052 u	< 0.0045 u	< 0.0034 u	< 0.0043 u	< 0.0048 u	< 0.0037 u
Chloroform	5.90E+00	(1)	2.87E+01	(4)	1.09E-02	(8)	< 0.0034 u	< 0.0023 u	< 0.0025 u	< 0.0025 u	< 0.0035 u	< 0.0023 u	< 0.0024 u	< 0.0022 u	< 0.0028 u	< 0.0034 u	< 0.0025 u	< 0.002 u	< 0.0023 u	< 0.0028 u	< 0.0024 u	< 0.0018 u	< 0.0023 u	< 0.0026 u	< 0.002 u
Chloromethane	4.11E+01	(1)	2.01E+02	(4)	9.52E-02	(8)	< 0.004 u	< 0.0028 u	< 0.0029 u	< 0.003 u	< 0.0041 u	< 0.0027 u	< 0.0028 u	< 0.0026 u	< 0.0034 u	< 0.0041 u	< 0.003 u	< 0.0023 u	< 0.0027 u	< 0.0034 u	< 0.0029 u	< 0.0022 u	< 0.0028 u	< 0.0031 u	< 0.0024 u
cis-1,2-Dichloroethene	1.56E+02	(1)	7.08E+02	(5)	3.52E-01	(8)	< 0.0058 u	< 0.004 u	< 0.0042 u	< 0.0042 u	< 0.0059 u	< 0.0038 u	< 0.0041 u	< 0.0037 u	< 0.0048 u	< 0.0058 u	< 0.0043 u	< 0.0033 u	< 0.0039 u	< 0.0048 u	< 0.0042 u	< 0.0031 u	< 0.004 u	< 0.0045 u	< 0.0035 u
cis-1,3-Dichloropropene	-	-	-	-	-	-	< 0.0036 u	< 0.0024 u	< 0.0026 u	< 0.0026 u	< 0.0036 u	< 0.0024 u	< 0.0025 u	< 0.0023 u	< 0.003 u	< 0.0036 u	< 0.0026 u	< 0.002 u	< 0.0024 u	< 0.003 u	< 0.0026 u	< 0.0019 u	< 0.0025 u	< 0.0028 u	< 0.0021 u
Dibromochloromethane	1.39E+01	(1)	6.74E+01	(4)	7.55E-03	(8)	< 0.003 u	< 0.0021 u	< 0.0022 u	< 0.0022 u	< 0.0031 u	< 0.002 u	< 0.0021 u	< 0.0019 u	< 0.0025 u	< 0.003 u	< 0.0022 u	< 0.0017 u	< 0.002 u	< 0.0025 u	< 0.0022 u	< 0.0016 u	< 0.0021 u	< 0.0023 u	< 0.0018 u

Table 5 - Soil Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

NMED constitutent name	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SL-1 (0-0.5')		SL-1 (2-2.5')		SL-1 (6-8')		SL-1 (12-14')		SL-2 (0-0.5')		SL-2 (2-2.5')		SL-2 (2.5-4')		SL-2 (6-8')		SL-2 (14-16')		SL-3 (0-0.5')	
					Lab ID		10/28/2019		10/28/2019		10/28/2019		10/28/2019		10/29/2019		10/29/2019		10/29/2019		10/29/2019		10/29/2019		10/29/2019	
					Sample Date		1910e91-001		1910e91-002		1910e91-003		1910e91-004		1910f75-001		1910f75-002		1910f75-003		1910f75-004		1910f75-005		1910f75-006	
Dibromomethane (Methylene Bromide)	2.40E+01	(2)	9.90E+01	(6)	4.20E-02	(9)	< 0.0045	u	< 0.0031	u	< 0.0033	u	< 0.0033	u	< 0.0046	u	< 0.003	u	< 0.0032	u	< 0.0029	u	< 0.0038	u	< 0.0046	u
Dichlorodifluoromethane	1.82E+02	(1)	1.61E+02	(5)	7.23E+00	(8)	< 0.0098	u	< 0.0067	u	< 0.0071	u	< 0.0072	u	< 0.01	u	< 0.0065	u	< 0.0069	u	< 0.0063	u	< 0.0082	u	< 0.0098	u
Ethylbenzene	7.51E+01	(1)	3.68E+02	(4)	1.23E+01	(8)	< 0.0025	u	0.41	v	< 0.0018	u	< 0.0018	u	< 0.0025	u	< 0.0016	u	< 0.0017	u	< 0.0016	u	< 0.002	u	< 0.0025	u
Hexachloro-1,3-butadiene	6.16E+01	(1)	5.21E+01	(4)	4.13E-02	(8)	< 0.0043	u	< 0.003	u	< 0.0031	u	< 0.0032	u	0.012	J	< 0.0029	u	< 0.003	u	< 0.0028	u	< 0.0036	u	< 0.0043	u
Cumene (isopropylbenzene)	2.36E+03	(1)	2.74E+03	(5)	1.14E+01	(8)	< 0.003	u	0.16	v	< 0.0022	u	< 0.0022	u	< 0.0031	u	< 0.002	u	< 0.0021	u	< 0.002	u	< 0.0025	u	< 0.0031	u
tert-Butyl methyl ether (MTBE)	9.75E+02	(1)	4.82E+03	(4)	5.53E-01	(8)	< 0.01	u	< 0.0069	u	< 0.0073	u	< 0.0073	u	< 0.0102	u	< 0.0067	u	< 0.007	u	< 0.0064	u	< 0.0083	u	< 0.0101	u
Methylene chloride (Dichloromethan	4.09E+02	(1)	1.21E+03	(5)	2.21E-02	(10)	0.011	J	0.0075	J	0.0084	J	< 0.0055	u	< 0.0076	u	< 0.005	u	< 0.0052	u	< 0.0048	u	< 0.0062	u	< 0.0075	u
Naphthalene	1.16E+03	(1)	5.02E+03	(5)	8.23E-02	(8)	< 0.0084	u	0.19	v	< 0.0062	u	< 0.0062	u	< 0.0086	u	< 0.0056	u	< 0.0059	u	< 0.0054	u	< 0.007	u	< 0.0085	u
Butylbenzene, n-	3.90E+03	(2)	5.80E+04	(6)	6.40E+01	(9)	< 0.0039	u	0.23	v	< 0.0029	u	< 0.0029	u	< 0.004	u	< 0.0026	u	< 0.0028	u	< 0.0025	u	< 0.0033	u	< 0.004	u
Propyl benzene	3.80E+03	(2)	2.40E+04	(6)	2.40E+01	(9)	< 0.0034	u	0.38	v	< 0.0025	u	< 0.0025	u	< 0.0034	u	< 0.0022	u	< 0.0024	u	< 0.0022	u	< 0.0028	u	< 0.0034	u
Butylbenzene, sec-	7.80E+03	(2)	1.20E+05	(6)	1.18E+02	(9)	< 0.0048	u	0.16	v	< 0.0035	u	< 0.0035	u	< 0.0049	u	< 0.0032	u	< 0.0033	u	< 0.0031	u	< 0.004	u	< 0.0048	u
Styrene	7.26E+03	(1)	1.02E+04	(5)	1.71E+00	(10)	< 0.0033	u	< 0.0023	u	< 0.0024	u	< 0.0024	u	< 0.0034	u	< 0.0022	u	< 0.0023	u	< 0.0021	u	< 0.0028	u	< 0.0033	u
Butylbenzene, tert-	7.80E+03	(2)	1.20E+05	(6)	3.20E+01	(9)	< 0.004	u	< 0.0027	u	< 0.0029	u	< 0.0029	u	< 0.0041	u	< 0.0026	u	< 0.0028	u	< 0.0026	u	< 0.0033	u	< 0.004	u
Tetrachloroethene	1.11E+02	(1)	1.20E+02	(5)	3.98E-02	(10)	< 0.0034	u	< 0.0023	u	< 0.0025	u	< 0.0025	u	< 0.0034	u	< 0.0022	u	< 0.0024	u	< 0.0022	u	< 0.0028	u	< 0.0034	u
Toluene	5.23E+03	(1)	1.40E+04	(5)	1.11E+01	(10)	< 0.004	u	< 0.0028	u	< 0.0029	u	< 0.003	u	< 0.0041	u	< 0.0027	u	< 0.0028	u	< 0.0026	u	< 0.0034	u	< 0.0041	u
trans-1,2-Dichloroethene	2.95E+02	(1)	3.05E+02	(5)	5.03E-01	(8)	< 0.0039	u	< 0.0027	u	< 0.0028	u	< 0.0028	u	< 0.0039	u	< 0.0026	u	< 0.0027	u	< 0.0025	u	< 0.0032	u	< 0.0039	u
trans-1,3-Dichloropropene	-	-	-	-	-	-	< 0.0045	u	< 0.0031	u	< 0.0033	u	< 0.0033	u	< 0.0046	u	< 0.003	u	< 0.0031	u	< 0.0029	u	< 0.0037	u	< 0.0045	u
Trichloroethylene	6.77E+00	(1)	6.90E+00	(5)	3.10E-02	(8)	< 0.0049	u	< 0.0034	u	< 0.0036	u	< 0.0036	u	< 0.005	u	< 0.0033	u	< 0.0034	u	< 0.0031	u	< 0.0041	u	< 0.0049	u
Trichlorofluoromethane	1.23E+03	(1)	1.13E+03	(5)	1.57E+01	(8)	< 0.0143	u	< 0.0099	u	< 0.0104	u	< 0.0105	u	< 0.0146	u	< 0.0095	u	< 0.0101	u	< 0.0092	u	< 0.0119	u	< 0.0144	u
Vinyl chloride	7.42E-01	(1)	2.84E+01	(4)	1.34E-02	(8)	< 0.0028	u	< 0.0019	u	< 0.002	u	< 0.002	u	< 0.0028	u	< 0.0018	u	< 0.0019	u	< 0.0018	u	< 0.0023	u	< 0.0028	u
Xylenes	8.71E+02	(1)	7.98E+02	(5)	1.54E+02	(8)	< 0.0106	u	1.6	v	< 0.0078	u	< 0.0078	u	< 0.0109	u	< 0.0071	u	< 0.0075	u	< 0.0068	u	< 0.0089	u	< 0.0107	u
Semi-volatiles (mg/kg)																										
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	3.10E+00	(8)	< 1.4472	u	< 0.1473	u	< 0.1374	u	< 0.1554	u	< 1.4087	u	< 0.16	u	< 0.1393	u	< 0.1541	u	< 0.1581	u	< 0.3128	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	9.08E+00	(8)	< 1.1186	u	< 0.1138	u	< 0.1062	u	< 0.1201	u	< 1.0888	u	< 0.1237	u	< 0.1077	u	< 0.1191	u	< 0.1222	u	< 0.2418	u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.9804	u	< 0.0998	u	< 0.0931	u	< 0.1053	u	< 0.9543	u	< 0.1084	u	< 0.0944	u	< 0.1044	u	< 0.1071	u	< 0.2119	u
1,4-Dichlorobenzene	1.29E+03	(1)	6.73E+03	(4)	1.12E+00	(8)	< 0.9919	u	< 0.1009	u	< 0.0942	u	< 0.1065	u	< 0.9655	u	< 0.1097	u	< 0.0955	u	< 0.1057	u	< 0.1083	u	< 0.2144	u
1-Methylnaphthalene	1.72E+02	(1)	8.13E+02	(7)	8.93E-01	(8)	< 1.3938	u	0.73	v	< 0.1323	u	< 0.1496	u	< 1.3567	u	< 0.1541	u	< 0.1342	u	< 0.1485	u	< 0.1522	u	< 0.3013	u
2,4,5-Trichlorophenol	6.16E+03	(1)	2.69E+04	(5)	6.62E+01	(8)	< 1.2072	u	< 0.1229	u	< 0.1146	u	< 0.1296	u	< 1.175	u	< 0.1335	u	< 0.1162	u	< 0.1286	u	< 0.1319	u	< 0.261	u
2,4,6-Trichlorophenol	6.16E+01	(1)	2.69E+02	(5)	6.74E-01	(8)	< 0.9788	u	< 0.0996	u	< 0.0929	u	< 0.1051	u	< 0.9528	u	< 0.1082	u	< 0.0943	u	< 0.1043	u	< 0.1069	u	< 0.2116	u
2,4-Dichlorophenol	1.85E+02	(1)	8.07E+02	(5)	8.25E-01	(8)	< 1.083	u	< 0.1102	u	< 0.1028	u	< 0.1163	u	< 1.0542	u	< 0.1198	u	< 0.1043	u	< 0.1154	u	< 0.1183	u	< 0.2341	u
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	6.45E+00	(8)	< 1.0263	u	< 0.1044	u	< 0.0975	u	< 0.1102	u	< 0.999	u	< 0.1135	u	< 0.0988	u	< 0.1093	u	< 0.1121	u	< 0.2219	u
2,4-Dinitrophenol	1.23E+02	(1)	5.38E+02	(5)	6.69E-01	(8)	< 0.6766	u	< 0.0689	u	< 0.0642	u	< 0.0726	u	< 0.6586	u	< 0.0748	u	< 0.0651	u	< 0.0721	u	< 0.0739	u	< 0.1463	u
2,4-Dinitrotoluene	1.71E+01	(1)	8.23E+01	(4)	4.92E-02	(8)	< 1.0976	u	< 0.1117	u	< 0.1042	u	< 0.1178	u	< 1.0684	u	< 0.1214	u	< 0.1057	u	< 0.1169	u	< 0.1199	u	< 0.2373	u
2,6-Dintitrotoluene	3.56E+00	(1)	1.72E+01	(4)	1.02E-02	(8)	< 1.2256	u	< 0.1247	u	< 0.1164	u	< 0.1316	u	< 1.193	u	< 0.1355	u	< 0.118	u	< 0.1305	u	< 0.1339	u	< 0.2649	u
b-Chloronaphthalene	6.26E+03	(1)	2.83E+04	(5)	5.70E+01	(8)	< 1.162	u	< 0.1183	u	< 0.1103	u	< 0.1248	u	< 1.1311	u	< 0.1285	u	< 0.1119	u	< 0.1238	u	< 0.1269	u	< 0.2512	u
2-Chlorophenol	3.91E+02	(1)	1.77E+03	(5)	1.15E+00	(8)	< 1.1584	u	< 0.1179	u	< 0.11	u	< 0.1244	u	< 1.1276	u	< 0.1281	u	< 0.1115	u	< 0.1234	u	< 0.1265	u	< 0.2504	u
2-Methylnaphthalene	2.32E+02	(1)	1.00E+03	(5)	2.76E+00	(8)	< 1.3567	u	< 0.1381	u	< 0.1288	u	< 0.1457	u	< 1.3206	u	< 0.15	u	< 0.1306	u	< 0.1445	u	< 0.1482	u	< 0.2933	u
Cresol, o-	3.20E+03	(2)	4.10E+04	(6)	1.50E+01	(9)	< 1.1044	u	< 0.1124	u	< 0.1049	u	< 0.1186	u	< 1.075	u	< 0.1221	u	< 0.1063	u	< 0.1176	u	< 0.1206	u	< 0.2387	u
Nitroaniline, 2-	6.30E+02	(2)	8.00E+03	(6)	1.60E+00	(9)	< 1.3299	u	< 0.1353	u	< 0.1263	u	< 0.1428	u	< 1.2945	u	< 0.1471	u	< 0.1281	u	< 0.1417	u	< 0.1453	u	< 0.2875	u
2-Nitrophenol	-	-	-	-	-	-	< 1.2715	u	< 0.1294	u	< 0.1207	u	< 0.1365	u	< 1.2377	u	< 0.1406	u	< 0.1224	u	< 0.1354	u	< 0.1389	u	< 0.2749	u
3,3-Dichlorobenzidine	1.18E+01	(1)	5.70E+01	(4)	1.24E-01	(8)	< 0.8277	u	< 0.0842	u	< 0.0786	u	< 0.0889	u	< 0.8057	u	< 0.0915	u	< 0.0797	u	< 0.0882	u	< 0.0904	u	< 0.1789	u
3+4-Methylphenol	-	-	-	-	-	-	< 1.1429	u	< 0.1163	u	< 0.1085	u	< 0.1227	u	< 1.1125	u	< 0.1264	u	< 0.1101	u	< 0.1217	u	< 0.1248	u	< 0.2471	u
3-Nitroaniline	-	-	-	-	-	-	< 1.2849	u	< 0.1308	u	< 0.122	u	< 0.138	u	< 1.2507	u	< 0.1421	u	< 0.1237	u	< 0.1369	u	< 0.1403	u	< 0.2778	u
4,6-Dinitro-o-cresol	4.93E+00	(1)	2.15E+01	(5)	3.98E-02	(8)	< 0.8601	u	< 0.0875	u	< 0.0817	u	< 0.0924	u	< 0.8373	u	< 0.0951	u	< 0.0828	u	< 0.0916	u	< 0.0939	u	< 0.1859	u
4-Bromophenyl phenyl ether	-	-	-	-	-	-	< 1.0947	u	< 0.1114	u	< 0.1039	u	< 0.1175	u	< 1.0655	u	< 0.121	u	< 0.1054	u	< 0.1166	u	< 0.1196	u	< 0.2366	u
4-Chloro-3-methylphenol	-	-	-	-	-	-	< 1.4287	u	< 0.1454	u	< 0.1357	u	< 0.1534	u	< 1.3907	u	< 0.158	u	< 0.1376	u	< 0.1522	u	< 0.1561	u	< 0.3089	u
Chloroaniline, p-	2.70E+01	(3)	1.10E+02	(7)	3.20E-03	(9)	< 1.3191	u	< 0.1342	u	< 0.1253	u	< 0.1416	u	< 1.284	u	< 0.1459	u	< 0.127	u	< 0.1405	u	< 0.1441	u	< 0.2852	u
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	< 1.0149	u	< 0.1033	u	< 0.0964	u	< 0.109	u	< 0.9879	u	< 0.1122	u	< 0.0977	u	< 0.1081	u	< 0.1109	u	< 0.2194	u
Nitroaniline, 4-	2.70E+02	(3)	1.10E+03	(7)	3.20E-02	(9)	< 1.189	u	< 0.121	u	< 0.1129	u	< 0.1277	u	< 1.1574	u	< 0.1315	u	< 0.1145	u	< 0.1267	u	< 0.1299	u	< 0.257	u
4-Nitrophenol	-	-	-	-	-	-	< 1.2628	u	< 0.1285	u	< 0.1199	u	< 0.1356	u	< 1.2292	u	< 0.1396	u	< 0.1216	u	< 0.1345	u	< 0.1379	u	< 0.273	u
Acenaphthene	3.48E+03	(1)	1.51E+04	(5)	8.25E+01	(8)	< 1.1171	u	< 0.1137	u	< 0.1061	u	< 0.1199	u	< 1.0873	u	< 0.1235	u	< 0.1076	u	< 0.119	u	< 0.122	u	< 0.2415	u
Acenaphthylene	-	-	-	-	-	-	< 1.0206	u	< 0.1039	u	< 0.0969	u	< 0.1096	u	< 0.9935	u	< 0.1129	u	< 0.0983	u	< 0.1087	u	< 0.1115	u	< 0.2206	u
Aniline	9.50E+02	(3)	4.00E+03	(7)	9.20E-02	(9)	< 1.1974	u	< 0.1219	u	< 0.1137	u	< 0.1286	u	< 1.1655	u	< 0.1324	u	< 0.1153	u	< 0.1275	u	< 0.1308	u	< 0.2588	u
Anthracene	1.74E+04	(1)	7.53E+04	(5)	8.51E+02	(8)	< 0.9957	u	< 0.1013	u	< 0.0945	u	< 0.1069	u	< 0.9692	u	< 0.1101	u	< 0.0959	u	< 0.1061	u	< 0.1088	u	< 0.2152	u
Azobenzene	5.60E+01	(3)	2.60E+02	(7)	1.86E+06	(9)	< 1.3036	u	< 0.1327	u	< 0.1238	u	< 0.14	u	< 1.2689	u	< 0.1441	u	< 0.1255	u	< 0.1389	u	< 0.1424	u	< 0.2818	u
Benzo(a)anthracene	1.53E+00	(1)	3.23E+01	(4)	6.37E-01	(8)	< 0.8972	u	< 0.0913	u	< 0.0852	u	< 0.0963	u	< 0.8733	u	< 0.0992	u	< 0.0864	u	< 0.0956	u	< 0.098	u	< 0.194	u
Benzo(a)pyrene	1.12E+00	(1)	2.36E+01	(4)	3.53E+00	(10)	< 0.8276	u	< 0.0842	u	< 0.0786	u	< 0.0889	u	< 0.8056	u	< 0.0915	u	< 0.0797	u	< 0.0882	u	< 0.0904	u	< 0.1789	u
Benzo(b)fluoranthene	1.53E+00	(1)	3.23E+01	(4)	6.17E+00	(8)	< 0.8236	u	< 0.0838	u	< 0.0782	u	< 0.0884	u	< 0.8017	u	< 0.0911	u	< 0.0793	u	< 0.0877	u	< 0.09	u	< 0.178	u
Benzo(g,h,i)perylene	-	-	-	-	-	-	< 0.7987	u	< 0.0813	u	< 0.0758	u	< 0.0858	u	< 0.7775	u	< 0.0883	u	< 0.0769	u	< 0.0851	u	< 0.0872	u	< 0.1727	u
Benzo(k)fluoranthene	1.53E+01	(1)	3.23E+02	(4)	6.05E+01	(8)	< 0.8463	u	< 0.0861	u	< 0.0804	u	< 0.0909	u	< 0.8238	u	< 0.0936	u	< 0.0815	u	< 0.0901	u	< 0.0924	u	< 0.183	u
Benzoic acid	2.50E+05	(2)	3.30E+06	(6)	3.00E+02	(9)	< 0.9618	u	< 0.0979	u	< 0.0913	u	< 0.1033	u	< 0.9362	u	< 0.1063	u	< 0.0926	u	< 0.1024	u	< 0.1051	u	< 0.2079	u
Benzyl alcohol	6.30E+03	(2)	8.20E+04	(6)	9.60E+00	(9)	< 1.1553	u	< 0.1176	u	< 0.1097	u	< 0.124	u	< 1.1246	u	< 0.1277	u	< 0.1112	u	< 0.1231	u	< 0.1262	u	< 0.2497	u
Bis(2-chloroethoxy)methane	1.90E+02	(2)	2.50E+03	(6)	2.60E-01	(9)	< 1.3765	u	< 0.1401	u	< 0.1307	u	< 0.1478	u	< 1.3399	u	< 0.1522	u	< 0.1325	u	< 0.1466	u	< 0.1503	u	< 0.2976	u
Bis(2-chloroethyl) ether	3.11E+00	(1)	1.95E+00	(5)	6.05E-04	(8)	< 1.1348	u	< 0.1155	u	< 0.1078	u	< 0.1218	u	< 1.1047	u	< 0.1255	u	< 0.1093	u	< 0.1209	u	< 0.124	u	< 0.2453	u
Bis(2-chloroisopropyl) ether	9.93E+01	(1)	5.19E+02	(4)	4.75E-02	(8)	< 1.0601	u	< 0.1079	u	< 0.1007	u	< 0.1138	u	< 1.0319	u	< 0.1172	u	< 0.1021	u	< 0.1129	u	< 0.1158	u	< 0.2292	u
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate, DEHP]	3.80E+02	(1)	1.83E+03	(4)	2.15E+01	(10)	< 1.3378	u	< 0.1361	u	< 0.127	u	< 0.1436	u	< 1.3022	u	0.15	J	< 0.1288	u	< 0.1425	u	< 0.1461	u	< 0.2892	u
Butyl Benzyl Phthalate	2.90E+03	(3)	1.20E+04	(7)	4.60E+00	(9)	< 0.9519	u	< 0.0969	u	< 0.0904	u	< 0.1022	u	< 0.9265	u	< 0.1053	u	< 0.0917	u	< 0.1014	u	< 0.104	u	< 0.2058	u
Carbazole	-	-	-	-	-	-	< 1.092	u	< 0.1111	u	< 0.1037	u	< 0.1172	u	< 1.0629	u	< 0.1207	u	< 0.1051	u	< 0.1163	u	< 0.1193	u	< 0.2361	u
Chrysene	1.53E+02	(1)	3.23E+03	(4)	1.86E+02	(8)	< 0.8212	u	< 0.0836	u	< 0.078	u	< 0.0882	u	< 0.7993	u	< 0.0908	u	< 0.0791	u	< 0.0875	u	< 0.0897	u	< 0.1775	u
Dibenz(a,h)anthracene	1.53E-01	(1)	3.23E+00	(4)	1.97E+00	(8)	< 0.8466	u	< 0.0862	u	< 0.0804	u	< 0.0909	u	< 0.8241	u	< 0.0936	u	< 0.0815	u	< 0.0902	u	< 0.0925	u	< 0.183	u
Dibenzofuran	7.30E+01	(2)	1.00E+03	(6)	3.00E+00	(9)	< 1.2202	u	< 0.1242	u	< 0.1159	u	< 0.131	u	< 1.1878	u	< 0.1349	u	< 0.1175	u	< 0.13	u	< 0.1333	u	< 0.2638	u

NMED constitutent name	SL-3 (2-2.5')		SL-3 (6-8')		SL-3 (14-16')		SL-4 (0-0.5')		SL-4 (2-2.5')		SL-4 (6-8')		SL-4 (14-16')		SL-5 (0-0.5')		SL-5 (2-2.5')	
Lab ID	10/29/2019		10/29/2019		10/29/2019		10/30/2019		10/30/2019		10/30/2019		10/30/2019		10/30/2019		10/30/2019	
Sample Date	1910f75-007		1910f75-008		1910f75-009		1910g04-001		1910g04-002		1910g04-003		1910g04-004		1910g04-005		1910g04-007	
Dibromomethane (Methylene Bromide)	< 0.0033	u	< 0.0026	u	< 0.003	u	< 0.0038	u	< 0.0033	u	< 0.0025	u	< 0.0031	u	< 0.0035	u	< 0.0027	u
Dichlorodifluoromethane	< 0.0072	u	< 0.0056	u	< 0.0065	u	< 0.0082	u	< 0.007	u	< 0.0053	u	< 0.0068	u	< 0.0076	u	< 0.0059	u
Ethylbenzene	< 0.0018	u	< 0.0014	u	< 0.0016	u	< 0.002	u	< 0.0018	u	< 0.0013	u	< 0.0017	u	< 0.0019	u	< 0.0015	u
Hexachloro-1,3-butadiene	< 0.0032	u	< 0.0025	u	< 0.0029	u	< 0.0036	u	< 0.0031	u	< 0.0023	u	< 0.003	u	< 0.0033	u	< 0.0026	u
Cumene (isopropylbenzene)	< 0.0022	u	< 0.0017	u	< 0.002	u	< 0.0025	u	< 0.0022	u	< 0.0017	u	< 0.0021	u	< 0.0024	u	< 0.0018	u
tert-Butyl methyl ether (MTBE)	< 0.0074	u	< 0.0058	u	< 0.0067	u	< 0.0083	u	< 0.0072	u	< 0.0054	u	< 0.0069	u	< 0.0078	u	< 0.006	u
Methylene chloride (Dichloromethan	< 0.0055	u	< 0.0043	u	< 0.005	u	< 0.0062	u	< 0.0054	u	< 0.004	u	< 0.0051	u	< 0.0058	u	< 0.0045	u
Naphthalene	< 0.0062	u	< 0.0049	u	< 0.0056	u	< 0.007	u	< 0.0061	u	< 0.0046	u	< 0.0058	u	< 0.0066	u	< 0.0051	u
Butylbenzene, n-	< 0.0029	u	< 0.0023	u	< 0.0026	u	< 0.0033	u	< 0.0028	u	< 0.0021	u	< 0.0027	u	< 0.0031	u	< 0.0024	u
Propyl benzene	< 0.0025	u	< 0.0019	u	< 0.0022	u	< 0.0028	u	< 0.0024	u	< 0.0018	u	< 0.0023	u	< 0.0026	u	< 0.002	u
Butylbenzene, sec-	< 0.0035	u	< 0.0027	u	< 0.0032	u	< 0.004	u	< 0.0034	u	< 0.0026	u	< 0.0033	u	< 0.0037	u	< 0.0028	u
Styrene	< 0.0024	u	< 0.0019	u	< 0.0022	u	< 0.0028	u	< 0.0024	u	< 0.0018	u	< 0.0023	u	< 0.0026	u	< 0.002	u
Butylbenzene, tert-	< 0.0029	u	< 0.0023	u	< 0.0027	u	< 0.0033	u	< 0.0029	u	< 0.0022	u	< 0.0028	u	< 0.0031	u	< 0.0024	u
Tetrachloroethene	< 0.0025	u	< 0.0019	u	< 0.0023	u	< 0.0028	u	< 0.0024	u	< 0.0018	u	< 0.0023	u	< 0.0026	u	< 0.002	u
Toluene	< 0.003	u	< 0.0023	u	< 0.0027	u	< 0.0034	u	< 0.0029	u	< 0.0022	u	< 0.0028	u	< 0.0031	u	< 0.0024	u
trans-1,2-Dichloroethene	< 0.0028	u	< 0.0022	u	< 0.0026	u	< 0.0032	u	< 0.0028	u	< 0.0021	u	< 0.0027	u	< 0.003	u	< 0.0023	u
trans-1,3-Dichloropropene	< 0.0033	u	< 0.0026	u	< 0.003	u	< 0.0037	u	< 0.0032	u	< 0.0024	u	< 0.0031	u	< 0.0035	u	< 0.0027	u
Trichloroethylene	< 0.0036	u	< 0.0028	u	< 0.0033	u	< 0.0041	u	< 0.0035	u	< 0.0027	u	< 0.0034	u	< 0.0038	u	< 0.0029	u
Trichlorofluoromethane	< 0.0106	u	< 0.0082	u	< 0.0096	u	< 0.0119	u	< 0.0103	u	< 0.0078	u	< 0.0099	u	< 0.0111	u	< 0.0086	u
Vinyl chloride	< 0.002	u	< 0.0016	u	< 0.0018	u	< 0.0023	u	< 0.002	u	< 0.0015	u	< 0.0019	u	< 0.0021	u	< 0.0016	u
Xylenes	< 0.0078	u	< 0.0061	u	< 0.0071	u	< 0.0089	u	< 0.0077	u	< 0.0058	u	< 0.0074	u	< 0.0083	u	< 0.0064	u
Semi-volatiles (mg/kg)																		
1,2,4-Trichlorobenzene	< 0.1448	u	< 0.1524	u	< 0.1473	u	< 1.5008	u	< 0.7482	u	< 0.1552	u	< 0.144	u	< 1.5404	u	< 0.2921	u
1,2-Dichlorobenzene	< 0.1119	u	< 0.1178	u	< 0.1138	u	< 1.16	u	< 0.5783	u	< 0.1199	u	< 0.1113	u	< 1.1907	u	< 0.2257	u
1,3-Dichlorobenzene	< 0.0981	u	< 0.1033	u	< 0.0998	u	< 1.0167	u	< 0.5069	u	< 0.1051	u	< 0.0975	u	< 1.0436	u	< 0.1979	u
1,4-Dichlorobenzene	< 0.0992	u	< 0.1045	u	< 0.1009	u	< 1.0286	u	< 0.5128	u	< 0.1064	u	< 0.0987	u	< 1.0558	u	< 0.2002	u
1-Methylnaphthalene	< 0.1394	u	< 0.1468	u	< 0.1418	u	< 1.4454	u	< 0.7206	u	< 0.1494	u	< 0.1386	u	< 1.4836	u	< 0.2813	u
2,4,5-Trichlorophenol	< 0.1208	u	< 0.1272	u	< 0.1229	u	< 1.2519	u	< 0.6241	u	< 0.1294	u	< 0.1201	u	< 1.285	u	< 0.2436	u
2,4,6-Trichlorophenol	< 0.0979	u	< 0.1031	u	< 0.0996	u	< 1.0151	u	< 0.5061	u	< 0.105	u	< 0.0974	u	< 1.0419	u	< 0.1975	u
2,4-Dichlorophenol	< 0.1083	u	< 0.1141	u	< 0.1102	u	< 1.1232	u	< 0.56	u	< 0.1161	u	< 0.1077	u	< 1.1529	u	< 0.2186	u
2,4-Dimethylphenol	< 0.1027	u	< 0.1081	u	< 0.1044	u	< 1.0643	u	< 0.5306	u	< 0.11	u	< 0.1021	u	< 1.0924	u	< 0.2071	u
2,4-Dinitrophenol	< 0.0677	u	< 0.0713	u	< 0.0689	u	< 0.7016	u	< 0.3498	u	< 0.0725	u	< 0.0673	u	< 0.7202	u	< 0.1365	u
2,4-Dinitrotoluene	< 0.1098	u	< 0.1156	u	< 0.1117	u	< 1.1382	u	< 0.5675	u	< 0.1177	u	< 0.1092	u	< 1.1683	u	< 0.2215	u
2,6-Dintitrotoluene	< 0.1226	u	< 0.1291	u	< 0.1247	u	< 1.2709	u	< 0.6336	u	< 0.1314	u	< 0.1219	u	< 1.3046	u	< 0.2473	u
b-Chloronaphthalene	< 0.1162	u	< 0.1224	u	< 0.1183	u	< 1.205	u	< 0.6008	u	< 0.1246	u	< 0.1156	u	< 1.2369	u	< 0.2345	u
2-Chlorophenol	< 0.1159	u	< 0.122	u	< 0.1179	u	< 1.2013	u	< 0.5989	u	< 0.1242	u	< 0.1152	u	< 1.2331	u	< 0.2338	u
2-Methylnaphthalene	< 0.1357	u	< 0.1429	u	< 0.1381	u	< 1.4069	u	< 0.7014	u	< 0.1455	u	< 0.135	u	< 1.4441	u	< 0.2738	u
Cresol, o-	< 0.1105	u	< 0.1163	u	< 0.1124	u	< 1.1453	u	< 0.571	u	< 0.1184	u	< 0.1099	u	< 1.1756	u	< 0.2229	u
Nitroaniline, 2-	< 0.133	u	< 0.1401	u	< 0.1353	u	< 1.3792	u	< 0.6876	u	< 0.1426	u	< 0.1323	u	< 1.4156	u	< 0.2684	u
2-Nitrophenol	< 0.1272	u	< 0.1339	u	< 0.1294	u	< 1.3186	u	< 0.6574	u	< 0.1363	u	< 0.1265	u	< 1.3535	u	< 0.2566	u
3,3-Dichlorobenzidine	< 0.0828	u	< 0.0872	u	< 0.0842	u	< 0.8584	u	< 0.428	u	< 0.0888	u	< 0.0823	u	< 0.8811	u	< 0.1671	u
3+4-Methylphenol	< 0.1143	u	< 0.1204	u	< 0.1163	u	< 1.1852	u	< 0.5909	u	< 0.1226	u	< 0.1137	u	< 1.2166	u	< 0.2307	u
3-Nitroaniline	< 0.1285	u	< 0.1353	u	< 0.1308	u	< 1.3324	u	< 0.6643	u	< 0.1378	u	< 0.1278	u	< 1.3677	u	< 0.2593	u
4,6-Dinitro-o-cresol	< 0.086	u	< 0.0906	u	< 0.0875	u	< 0.892	u	< 0.4447	u	< 0.0922	u	< 0.0856	u	< 0.9156	u	< 0.1736	u
4-Bromophenyl phenyl ether	< 0.1095	u	< 0.1153	u	< 0.1114	u	< 1.1352	u	< 0.566	u	< 0.1174	u	< 0.1089	u	< 1.1652	u	< 0.2209	u
4-Chloro-3-methylphenol	< 0.1429	u	< 0.1505	u	< 0.1454	u	< 1.4816	u	< 0.7387	u	< 0.1532	u	< 0.1421	u	< 1.5208	u	< 0.2883	u
Chloroaniline, p-	< 0.132	u	< 0.1389	u	< 0.1342	u	< 1.368	u	< 0.682	u	< 0.1414	u	< 0.1312	u	< 1.4042	u	< 0.2662	u
4-Chlorophenyl phenyl ether	< 0.1015	u	< 0.1069	u	< 0.1033	u	< 1.0525	u	< 0.5247	u	< 0.1088	u	< 0.101	u	< 1.0803	u	< 0.2048	u
Nitroaniline, 4-	< 0.1189	u	< 0.1252	u	< 0.121	u	< 1.2331	u	< 0.6147	u	< 0.1275	u	< 0.1183	u	< 1.2657	u	< 0.24	u
4-Nitrophenol	< 0.1263	u	< 0.133	u	< 0.1285	u	< 1.3096	u	< 0.6529	u	< 0.1354	u	< 0.1256	u	< 1.3442	u	< 0.2549	u
Acenaphthene	< 0.1117	u	< 0.1177	u	< 0.1137	u	< 1.1584	u	< 0.5775	u	< 0.1198	u	< 0.1111	u	< 1.1891	u	< 0.2254	u
Acenaphthylene	< 0.1021	u	< 0.1075	u	< 0.1039	u	< 1.0584	u	< 0.5277	u	< 0.1094	u	< 0.1015	u	< 1.0864	u	< 0.206	u
Aniline	< 0.1198	u	< 0.1261	u	< 0.1219	u	< 1.2417	u	< 0.6191	u	< 0.1284	u	< 0.1191	u	< 1.2746	u	< 0.2417	u
Anthracene	< 0.0996	u	< 0.1049	u	< 0.1013	u	< 1.0325	u	< 0.5148	u	< 0.1068	u	< 0.099	u	< 1.0598	u	< 0.2009	u
Azobenzene	< 0.1304	u	< 0.1373	u	< 0.1327	u	< 1.3519	u	< 0.674	u	< 0.1398	u	< 0.1297	u	< 1.3876	u	< 0.2631	u
Benzo(a)anthracene	< 0.0897	u	< 0.0945	u	< 0.0913	u	< 0.9304	u	< 0.4639	u	< 0.0962	u	< 0.0892	u	< 0.955	u	< 0.1811	u
Benzo(a)pyrene	< 0.0828	u	< 0.0872	u	< 0.0842	u	< 0.8582	u	< 0.4279	u	< 0.0887	u	< 0.0823	u	< 0.8809	u	< 0.167	u
Benzo(b)fluoranthene	< 0.0824	u	< 0.0867	u	< 0.0838	u	< 0.8541	u	< 0.4258	u	< 0.0883	u	< 0.0819	u	< 0.8767	u	< 0.1662	u
Benzo(g,h,i)perylene	< 0.0799	u	< 0.0841	u	< 0.0813	u	< 0.8283	u	< 0.413	u	< 0.0856	u	< 0.0795	u	< 0.8502	u	< 0.1612	u
Benzo(k)fluoranthene	< 0.0847	u	< 0.0891	u	< 0.0861	u	< 0.8777	u	< 0.4376	u	< 0.0907	u	< 0.0842	u	< 0.9009	u	< 0.1708	u
Benzoic acid	< 0.0962	u	< 0.1013	u	< 0.0979	u	< 0.9974	u	< 0.4973	u	< 0.1031	u	< 0.0957	u	< 1.0238	u	< 0.1941	u
Benzyl alcohol	< 0.1156	u	< 0.1217	u	< 0.1176	u	< 1.1981	u	< 0.5973	u	< 0.1239	u	< 0.1149	u	< 1.2298	u	< 0.2332	u
Bis(2-chloroethoxy)methane	< 0.1377	u	< 0.145	u	< 0.1401	u	< 1.4275	u	< 0.7117	u	< 0.1476	u	< 0.1369	u	< 1.4652	u	< 0.2778	u
Bis(2-chloroethyl) ether	< 0.1135	u	< 0.1195	u	< 0.1155	u	< 1.1769	u	< 0.5867	u	< 0.1217	u	< 0.1129	u	< 1.208	u	< 0.229	u
Bis(2-chloroisopropyl) ether	< 0.106	u	< 0.1117	u	< 0.1079	u	< 1.0993	u	< 0.5481	u	< 0.1137	u	< 0.1055	u	< 1.1284	u	< 0.2139	u
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate, DEHP]	< 0.1338	u	< 0.1409	u	< 0.1361	u	< 1.3873	u	< 0.6917	u	< 0.1434	u	< 0.1331	u	< 1.424	u	< 0.27	u
Butyl Benzyl Phthalate	< 0.0952	u	< 0.1003	u	< 0.0969	u	< 0.9871	u	< 0.4921	u	< 0.1021	u	< 0.0947	u	< 1.0132	u	< 0.1921	u
Carbazole	< 0.1092	u	< 0.115	u	< 0.1111	u	< 1.1324	u	< 0.5646	u	< 0.1171	u	< 0.1086	u	< 1.1624	u	< 0.2204	u
Chrysene	< 0.0821	u	< 0.0865	u	< 0.0836	u	< 0.8516	u	< 0.4246	u	< 0.0881	u	< 0.0817	u	< 0.8741	u	< 0.1657	u
Dibenz(a,h)anthracene	< 0.0847	u	< 0.0892	u	< 0.0862	u	< 0.8779	u	< 0.4377	u	< 0.0908	u	< 0.0842	u	< 0.9012	u	< 0.1709	u
Dibenzofuran	< 0.1221	u	< 0.1285	u	< 0.1242	u	< 1.2654	u	< 0.6309	u	< 0.1308	u	< 0.1214	u	< 1.2989	u	< 0.2463	u

Table 5 - Soil Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

NMED constitutent name	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SL-1 (0-0.5')	SL-1 (2-2.5')	SL-1 (6-8')	SL-1 (12-14')	SL-2 (0-0.5')	SL-2 (2-2.5')	SL-2 (2.5-4')	SL-2 (6-8')	SL-2 (14-16')	SL-3 (0-0.5')	SL-3 (2-2.5')	SL-3 (6-8')	SL-3 (14-16')	SL-4 (0-0.5')	SL-4 (2-2.5')	SL-4 (6-8')	SL-4 (14-16')	SL-5 (0-0.5')	SL-5 (2-2.5')
					Lab ID		10/28/2019	10/28/2019	10/28/2019	10/28/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/29/2019	10/30/2019	10/30/2019	10/30/2019	10/30/2019	10/30/2019	10/30/2019
					Sample Date		1910e91-001	1910e91-002	1910e91-003	1910e91-004	1910f75-001	1910f75-002	1910f75-003	1910f75-004	1910f75-005	1910f75-006	1910f75-007	1910f75-008	1910f75-009	1910g04-001	1910g04-002	1910g04-003	1910g04-004	1910g04-005	1910g04-007
Diethyl phthalate	4.93E+04	(1)	2.15E+05	(5)	9.79E+01	(8)	< 1.3288 u	< 0.1352 u	< 0.1262 u	< 0.1427 u	< 1.2935 u	< 0.1469 u	< 0.128 u	< 0.1415 u	< 0.1451 u	< 0.2873 u	< 0.1329 u	< 0.14 u	< 0.1352 u	< 1.378 u	< 0.687 u	< 0.1425 u	< 0.1322 u	< 1.4145 u	< 0.2682 u
Dimethyl phthalate (DMP, Phthalic Acid)	6.16E+04	(1)	2.69E+05	(5)	3.57E+00	(8)	< 1.2418 u	< 0.1264 u	< 0.1179 u	< 0.1333 u	< 1.2087 u	< 0.1373 u	< 0.1196 u	< 0.1323 u	< 0.1356 u	< 0.2684 u	< 0.1242 u	< 0.1308 u	< 0.1264 u	< 1.2877 u	< 0.642 u	< 0.1331 u	< 0.1235 u	< 1.3218 u	< 0.2506 u
Di-n-butyl phthalate (Dibutyl phthalate)	6.16E+03	(1)	2.69E+04	(5)	3.38E+01	(8)	< 1.3899 u	0.2 J	< 0.132 u	< 0.1492 u	< 1.3529 u	0.16 J	< 0.1338 u	0.16 J	< 0.1518 u	< 0.3005 u	< 0.139 u	< 0.1464 u	< 0.1414 u	< 1.4413 u	< 0.7186 u	< 0.149 u	< 0.1383 u	< 1.4794 u	< 0.2805 u
Di-n-octyl phthalate	6.30E+02	(2)	8.20E+03	(6)	1.14E+03	(9)	< 0.9501 u	< 0.0967 u	< 0.0902 u	< 0.102 u	< 0.9249 u	< 0.1051 u	< 0.0915 u	< 0.1012 u	< 0.1038 u	< 0.2054 u	< 0.095 u	< 0.1001 u	< 0.0967 u	< 0.9853 u	< 0.4912 u	< 0.1019 u	< 0.0945 u	< 1.0114 u	< 0.1918 u
Fluoranthene	2.32E+03	(1)	1.00E+04	(5)	1.34E+03	(8)	< 1.0429 u	< 0.1061 u	< 0.099 u	< 0.112 u	< 1.0152 u	< 0.1153 u	< 0.1004 u	< 0.1111 u	< 0.1139 u	< 0.2255 u	< 0.1043 u	< 0.1099 u	< 0.1061 u	< 1.0815 u	< 0.5392 u	< 0.1118 u	< 0.1037 u	< 1.1101 u	< 0.2105 u
Fluorene	2.32E+03	(1)	1.00E+04	(5)	8.00E+01	(8)	< 1.0612 u	< 0.108 u	< 0.1008 u	< 0.1139 u	< 1.033 u	< 0.1173 u	< 0.1022 u	< 0.113 u	< 0.1159 u	< 0.2294 u	< 0.1062 u	< 0.1118 u	< 0.108 u	< 1.1005 u	< 0.5487 u	< 0.1138 u	< 0.1056 u	< 1.1296 u	< 0.2142 u
Hexachlorobenzene	3.33E+00	(1)	1.17E+02	(5)	1.89E-01	(8)	< 1.1527 u	< 0.1173 u	< 0.1095 u	< 0.1238 u	< 1.122 u	< 0.1275 u	< 0.111 u	< 0.1228 u	< 0.1259 u	< 0.2492 u	< 0.1153 u	< 0.1214 u	< 0.1173 u	< 1.1954 u	< 0.596 u	< 0.1236 u	< 0.1147 u	< 1.227 u	< 0.2326 u
Hexachloro-1,3-butadiene	6.16E+01	(1)	5.21E+01	(4)	4.13E-02	(8)	< 1.2983 u	< 0.1321 u	< 0.1233 u	< 0.1394 u	< 1.2637 u	< 0.1436 u	< 0.125 u	< 0.1383 u	< 0.1418 u	< 0.2807 u	< 0.1299 u	< 0.1367 u	< 0.1321 u	< 1.3463 u	< 0.6712 u	< 0.1392 u	< 0.1291 u	< 1.382 u	< 0.262 u
Hexachlorocyclopentadiene	2.30E+00	(1)	8.67E+02	(5)	2.40E+00	(8)	< 1.0645 u	< 0.1083 u	< 0.1011 u	< 0.1143 u	< 1.0362 u	< 0.1177 u	< 0.1025 u	< 0.1134 u	< 0.1163 u	< 0.2301 u	< 0.1065 u	< 0.1121 u	< 0.1083 u	< 1.1039 u	< 0.5504 u	< 0.1141 u	< 0.1059 u	< 1.1331 u	< 0.2148 u
Hexachloroethane	1.33E+02	(1)	1.88E+02	(5)	3.20E-02	(8)	< 1.0374 u	< 0.1056 u	< 0.0985 u	< 0.1114 u	< 1.0098 u	< 0.1147 u	< 0.0999 u	< 0.1105 u	< 0.1133 u	< 0.2243 u	< 0.1038 u	< 0.1093 u	< 0.1056 u	< 1.0758 u	< 0.5363 u	< 0.1112 u	< 0.1032 u	< 1.1043 u	< 0.2094 u
Indeno(1,2,3-c,d)pyrene	1.53E+00	(1)	3.23E+01	(4)	2.01E+01	(8)	< 0.927 u	< 0.0943 u	< 0.088 u	< 0.0995 u	< 0.9023 u	< 0.1025 u	< 0.0893 u	< 0.0987 u	< 0.1013 u	< 0.2004 u	< 0.0927 u	< 0.0976 u	< 0.0943 u	< 0.9613 u	< 0.4793 u	< 0.0994 u	< 0.0922 u	< 0.9867 u	< 0.1871 u
Isophorone	5.61E+03	(1)	2.70E+04	(4)	0.00E+00	(9)	< 1.3712 u	< 0.1395 u	< 0.1302 u	< 0.1472 u	< 1.3347 u	< 0.1516 u	< 0.132 u	< 0.1461 u	< 0.1498 u	< 0.2964 u	< 0.1372 u	< 0.1444 u	< 0.1395 u	< 1.422 u	< 0.7089 u	< 0.147 u	< 0.1364 u	< 1.4596 u	< 0.2767 u
Naphthalene	1.16E+03	(1)	5.02E+03	(5)	8.23E-02	(8)	< 1.4082 u	0.22 v	< 0.1337 u	< 0.1512 u	< 1.3707 u	< 0.1557 u	< 0.1356 u	< 0.15 u	< 0.1538 u	< 0.3044 u	< 0.1409 u	< 0.1483 u	< 0.1433 u	< 1.4603 u	< 0.7281 u	< 0.151 u	< 0.1401 u	< 1.499 u	< 0.2842 u
Nitrobenzene	6.04E+01	(1)	2.93E+02	(4)	1.44E-02	(8)	< 1.2878 u	< 0.1311 u	< 0.1223 u	< 0.1383 u	< 1.2535 u	< 0.1424 u	< 0.124 u	< 0.1372 u	< 0.1407 u	< 0.2784 u	< 0.1288 u	< 0.1356 u	< 0.1311 u	< 1.3354 u	< 0.6658 u	< 0.1381 u	< 0.1281 u	< 1.3708 u	< 0.2599 u
Nitroso-di-N-propylamine, N-	7.80E-01	(3)	3.30E+00	(7)	1.62E-04	(9)	< 1.3295 u	< 0.1353 u	< 0.1262 u	< 0.1427 u	< 1.2941 u	< 0.147 u	< 0.128 u	< 0.1416 u	< 0.1452 u	< 0.2874 u	< 0.133 u	< 0.14 u	< 0.1353 u	< 1.3787 u	< 0.6874 u	< 0.1426 u	< 0.1322 u	< 1.4152 u	< 0.2683 u
N-Nitrosodiphenylamine	1.09E+03	(1)	5.24E+03	(4)	1.00E+01	(8)	< 0.9789 u	< 0.0996 u	< 0.093 u	< 0.1051 u	< 0.9528 u	< 0.1082 u	< 0.0943 u	< 0.1043 u	< 0.1069 u	< 0.2116 u	< 0.0979 u	< 0.1031 u	< 0.0996 u	< 1.0151 u	< 0.5061 u	< 0.105 u	< 0.0974 u	< 1.042 u	< 0.1976 u
Pentachlorophenol	9.85E+00	(1)	4.45E+01	(4)	1.52E-01	(8)	< 0.9597 u	< 0.0977 u	< 0.0911 u	< 0.103 u	< 0.9342 u	< 0.1061 u	< 0.0924 u	< 0.1022 u	< 0.1048 u	< 0.2075 u	< 0.096 u	< 0.1011 u	< 0.0977 u	< 0.9953 u	< 0.4962 u	< 0.1029 u	< 0.0955 u	< 1.0216 u	< 0.1937 u
Phenanthrene	1.74E+03	(1)	7.53E+03	(5)	8.59E+01	(8)	< 1.0078 u	< 0.1026 u	< 0.0957 u	< 0.1082 u	< 0.981 u	< 0.1114 u	< 0.097 u	< 0.1074 u	< 0.1101 u	< 0.2179 u	< 0.1008 u	< 0.1062 u	< 0.1026 u	< 1.0452 u	< 0.5211 u	< 0.1081 u	< 0.1003 u	< 1.0728 u	< 0.2034 u
Phenol	1.85E+04	(1)	7.74E+04	(5)	5.23E+01	(8)	< 1.1584 u	< 0.1179 u	< 0.11 u	< 0.1244 u	< 1.1276 u	< 0.1281 u	< 0.1115 u	< 0.1234 u	< 0.1265 u	< 0.2504 u	< 0.1159 u	< 0.122 u	< 0.1179 u	< 1.2014 u	< 0.5989 u	< 0.1242 u	< 0.1152 u	< 1.2331 u	< 0.2338 u
Pyrene	1.74E+03	(1)	7.53E+03	(5)	1.92E+02	(8)	< 0.8748 u	< 0.089 u	< 0.0831 u	< 0.0939 u	< 0.8515 u	< 0.0967 u	< 0.0842 u	< 0.0932 u	< 0.0956 u	< 0.1891 u	< 0.0875 u	< 0.0921 u	< 0.089 u	< 0.9072 u	< 0.4523 u	< 0.0938 u	< 0.087 u	< 0.9312 u	< 0.1766 u
Pyridine	7.80E+01	(2)	1.20E+03	(6)	1.36E-01	(9)	< 1.1214 u	< 0.1141 u	< 0.1065 u	< 0.1204 u	< 1.0916 u	< 0.124 u	< 0.108 u	< 0.1194 u	< 0.1225 u	< 0.2424 u	< 0.1122 u	< 0.1181 u	< 0.1141 u	< 1.1629 u	< 0.5798 u	< 0.1202 u	< 0.1116 u	< 1.1937 u	< 0.2263 u
Total Petroleum Hydrocarbons (mg/kg)																									
Gasoline Range Organics (GRO)	1.00E+03	(11)	3.80E+03	(11)	4.61E+03	(11)	< 1.277 u	42 v	< 0.9312 u	< 0.9375 u	< 1.3034 u	< 0.8501 u	< 0.8991 u	< 0.8202 u	< 1.0634 u	< 1.2835 u	< 0.9416 u	< 0.7346 u	< 0.853 u	< 1.0641 u	< 0.9188 u	< 0.6935 u	< 0.8823 u	< 0.9903 u	< 0.7639 u
Diesel Range Organics (DRO)	1.00E+03	(11)	3.80E+03	(11)	4.61E+03	(11)	670 v	240 v	2.6 J	2.3 J	**2600** v	210 v	54 v	13 v	6.1 J	**1300** v	15 v	4 J	4.1 J	270 v	52 v	< 1.7256 u	< 1.7873 u	3.1 J	< 1.8674 u
Motor Oil Range Organics (MRO)	1.00E+03	(11)	3.80E+03	(11)	4.61E+03	(11)	440 v	< 48.7805 u	< 50.5051 u	< 51.3347 u	540 v	< 45.3721 u	< 44.9236 u	< 44.484 u	< 42.6985 u	< 470.8098 u	< 46.3822 u	< 39.8724 u	< 42.9185 u	240 v	< 47.8469 u	< 43.1406 u	< 44.6828 u	< 49.7018 u	< 46.6853 u
Biological Analyses																									
Fecal Coliform (MPN/g)	-	-	-	-	-	-	<2.21 u	<2.37 u	<2.23 u	<2.13 u	<2.12 u	<2.31 u	<2.19 u	<2.31 u	<2.16 u	<2.13 u	<2.06 u	<2.22 u	<2.14 u	<2.16 u	5.14 v	<2.27 u	<2.11 u	<2.30 u	<2.34 u
E. Coli (CFU/10g)	-	-	-	-	-	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Total Coliform (CFU/10g)	-	-	-	-	-	-	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

- No screening level or analytical result available
NMED - Risk Assessment Guidance for Site Investigations and Remediation (March 2019)
EPA - Regional Screening Levels (Nov. 2019)
(1) NMED Residential Screening Level
(2) EPA Residential Screening Level
(3) EPA Residential - Screening Levels multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(4) NMED Industrial Occupational Screening Level
(5) NMED Construction Worker Screening Level
(6) EPA Industrial - Screening Levels
(7) EPA Industrial - Screening Levels multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(8) SoilGW NMED Cw Dilution Attenuation Factor (DAF) = 20
(9) SoilGW Risk-based EPA DAF = 20
(10) SoilGW MCL-based NMED DAF = 20
(11) NMED Tables 6-2 and 6-4 TPH Soil Screening Levels "unknown oil" - see report Section 5 for use of screening levels

Bold represents value above Residential Screening Level
yellow highlight represents value above Non-Residential Screening Level
Bold with yellow highlight value exceeds Residential and Non-Residential Screening Levels
MPN/g = most probable number per gram
CFU/10g = colony forming unit/10 grams
v = reportable detection above the Practical quantitation limit (PQL)
u - result is not detected at method detection limit (MDL)
j - estimated result at concentration above MDL but less than PQL

Table 5 - Soil Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

NMED constitutent name	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SL-5 (6-8')		SL-5 (12-14')		SL-6 (0-0.5')		SL-6 (2-2.5')		SL-6 (6-8')		SL-6 (12-14')		SL-7 (0-0.5')		SL-7 (2-2.5')		SL-7 (2.5-4')		SL-7 (10-12')		SL-8 (0-0.5')		SL-8 (2-2.5')		SL-8 (2.5-4')		SL-8 (12-14')	
					Lab ID		10/30/2019		10/30/2019		10/31/2019		10/31/2019		10/31/2019		10/31/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019	
					Sample Date		1910g04-006		1910g04-008		1910g20-001		1910g20-002		1910g20-003		1910g20-004		1911107-001		1911107-002		1911107-003		1911107-004		1911107-005		1911107-006		1911107-007		1911107-008	
Metals (mg/kg)																																		
Antimony	3.13E+01	(1)	1.42E+02	(5)	5.42E+00	(10)	< 0.7198	u	< 0.7574	u	< 0.7254	u	< 0.7326	u	< 0.7402	u	< 0.7588	u	< 0.7271	u	< 0.7383	u	< 0.716	u	< 0.7276	u	< 0.749	u	< 0.7387	u	< 0.7379	u	< 0.7287	u
Arsenic	7.07E+00	(1)	3.59E+01	(4)	5.83E+00	(8)	< 2.7918	u	< 2.9377	u	< 2.8138	u	< 2.8415	u	< 2.8713	u	< 2.9435	u	< 2.8202	u	< 2.8638	u	< 2.7772	u	< 2.8222	u	< 2.9054	u	< 2.8655	u	< 2.8621	u	< 2.8264	u
Barium	1.56E+04	(1)	4.39E+03	(5)	1.65E+03	(10)	350	v	210	v	850	v	180	v	64	v	880	v	290	v	300	v	180	v	230	v	300	v	330	v	200	v	270	v
Beryllium	1.56E+02	(1)	1.48E+02	(5)	6.32E+01	(10)	0.94	v	0.91	v	0.87	v	0.79	v	0.84	v	0.95	v	0.65	v	0.86	v	0.88	v	0.94	v	0.93	v	0.77	v	0.86	v	0.91	v
Cadmium	7.05E+01	(1)	7.21E+01	(5)	7.52E+00	(10)	< 0.0475	u	< 0.05	u	< 0.0479	u	< 0.0483	u	< 0.0488	u	< 0.0501	u	< 0.048	u	< 0.0487	u	< 0.0472	u	< 0.048	u	< 0.0494	u	< 0.0487	u	< 0.0487	u	< 0.0481	u
Chromium (Total)	9.66E+01	(1)	1.34E+02	(5)	3.60E+06	(10)	7.4	v	12	v	8.8	v	6.9	v	7	v	13	v	12	v	6.4	v	5.9	v	11	v	9.5	v	6.1	v	6.9	v	11	v
Hexavalent Chromium	3.05E+00	(1)	6.69E+01	(5)	3.60E+06	(10)	< 1	u	< 1	u	< 0.64	u	< 0.64	u	< 0.64	u	< 0.64	u	< 0.64	u	< 0.64	u	< 0.64	u	< 0.64	u	2.7	v	< 0.64	u	< 0.64	u	< 0.64	u
Cobalt	2.34E+01	(1)	3.67E+01	(5)	5.40E+00	(8)	3.9	v	6.1	v	3.3	v	3.7	v	3.9	v	6.1	v	2.4	v	3.7	v	3.3	v	6.1	v	2.7	v	3.5	v	5	v	5.7	v
Iron	5.48E+04	(1)	2.48E+05	(5)	6.96E+03	(8)	12000	v	17000	v	12000	v	11000	v	12000	v	19000	v	8900	v	11000	v	11000	v	16000	v	9000	v	10000	v	11000	v	17000	v
Lead	4.00E+02	(2)	8.00E+02	(6)	5.20E-02	(10)	4	v	1.4	v	5.4	v	3.4	v	3.2	v	3	v	21	v	3.9	v	4.3	v	3.2	v	11	v	4.4	v	4.1	v	2.8	v
Manganese	1.05E+04	(1)	4.64E+02	(5)	2.63E+03	(8)	160	v	340	v	97	v	210	v	310	v	660	v	65	v	140	v	160	v	480	v	90	v	140	v	160	v	680	v
Mercury (elemental)	2.38E+01	(1)	2.07E+01	(5)	2.09E+00	(8)	0.0032	J	0.0029	J	0.082	v	0.0093	J	0.003	J	0.0021	J	0.26	v	0.0043	J	0.003	J	0.003	J	0.53	v	0.012	J	0.016	J	0.0033	J
Nickel	1.56E+03	(1)	7.53E+02	(5)	4.85E+02	(8)	7.5	v	15	v	7.5	v	6.5	v	7	v	15	v	5.7	v	6.9	v	6.4	v	15	v	6.4	v	6.5	v	7.7	v	14	v
Selenium	3.91E+02	(1)	1.75E+03	(5)	5.17E+00	(10)	< 2.6123	u	< 2.5092	u	< 2.4671	u	< 2.4975	u	< 2.4744	u	< 2.4839	u	< 2.4807	u	< 2.519	u	< 2.4428	u	< 2.4824	u	< 2.5557	u	< 2.5205	u	< 2.5175	u	< 2.4861	u
Silver	3.91E+02	(1)	1.77E+03	(5)	1.38E+01	(8)	< 0.0627	u	< 0.066	u	< 0.0632	u	< 0.0638	u	< 0.0645	u	< 0.0661	u	< 0.0633	u	< 0.0643	u	< 0.0624	u	< 0.0634	u	< 0.0653	u	< 0.0644	u	< 0.0643	u	< 0.0635	u
Vanadium	3.94E+02	(1)	6.14E+02	(5)	1.26E+03	(8)	15	v	15	v	14	v	16	v	14	v	17	v	15	v	14	v	12	v	16	v	10	v	13	v	13	v	15	v
Zinc	2.35E+04	(1)	1.06E+05	(5)	7.41E+03	(8)	13	v	16	v	34	v	12	v	10	v	17	v	96	v	11	v	10	v	16	v	64	v	17	v	11	v	16	v
Non-Metals (mg/kg)																																		
Cyanide	1.12E+01	(1)	1.21E+01	(5)	7.13E-01	(8)	< 0.25	u	< 0.25	u	0.2	J	< 0.039	u	< 0.039	u	< 0.039	u	0.13	J	0.042	J	< 0.039	u	< 0.039	u	0.79	v	< 0.039	u	0.15	J	< 0.039	u
chloride	1.20E+07	(1)	1.59E+07	(5)	-	-	44	v	< 7.515	u	13	v	10	v	20	v	12	v	120	v	32	v	28	v	< 7.5226	u	120	v	32	v	27	v	< 7.4925	u
fluoride	4.69E+03	(1)	1.81E+04	(5)	1.20E+04	(8)	2.3	v	< 1.503	u	2.9	v	2.9	v	2.8	v	1.8	v	1.5	v	3.2	v	1.9	v	< 1.5045	u	< 1.4955	u	2.2	v	2.5	v	< 1.4985	u
sulfate	-	-	-	-	-	-	39	v	31	v	120	v	100	v	60	v	54	v	4400	v	570	v	280	v	22	v	3200	v	570	v	360	v	15	v
Nitrogen, Nitrate (As N)	1.25E+05	(1)	5.66E+05	(5)	4.25E+02	(8)	< 1.5015	u	< 1.503	u	30	v	10	v	< 1.5	u	< 1.5	u	21	v	< 1.503	u	< 1.5045	u	< 1.5045	u	110	v	< 1.506	u	< 1.4925	u	< 1.4985	u
Nitrogen, Nitrite (As N)	7.82E+03	(1)	3.54E+04	(5)	2.66E+01	(8)	< 1.5015	u	< 1.503	u	< 1.5075	u	< 1.497	u	< 1.5	u	< 1.5	u	< 1.4925	u	< 1.503	u	< 1.5045	u	< 1.5045	u	< 1.4955	u	< 1.506	u	< 1.4925	u	< 1.4985	u
Volatiles (mg/kg)																																		
1,1,1,2-Tetrachloroethane	2.81E+01	(1)	1.37E+02	(4)	3.60E-02	(8)	< 0.0031	u	< 0.0019	u	< 0.0022	u	< 0.0022	u	< 0.0019	u	< 0.0021	u	< 0.0019	u	< 0.002	u	< 0.0018	u	< 0.0022	u	< 0.0027	u	< 0.0018	u	< 0.0017	u	< 0.0019	u
1,1,1-Trichloroethane	1.44E+04	(1)	1.36E+04	(5)	1.28E+00	(10)	< 0.0042	u	< 0.0025	u	< 0.0029	u	< 0.003	u	< 0.0025	u	< 0.0028	u	< 0.0026	u	< 0.0027	u	< 0.0024	u	< 0.0029	u	< 0.0036	u	< 0.0024	u	< 0.0023	u	< 0.0026	u
1,1,2,2-Tetrachloroethane	7.98E+00	(1)	3.94E+01	(4)	4.81E-03	(8)	< 0.0047	u	< 0.0028	u	< 0.0033	u	< 0.0033	u	< 0.0028	u	< 0.0032	u	< 0.0029	u	< 0.003	u	< 0.0027	u	< 0.0032	u	< 0.004	u	< 0.0027	u	< 0.0026	u	< 0.0029	u
1,1,2-Trichloroethane	2.61E+00	(1)	2.30E+00	(5)	2.68E-02	(8)	< 0.0033	u	< 0.002	u	< 0.0023	u	< 0.0023	u	< 0.002	u	< 0.0022	u	< 0.002	u	< 0.0021	u	< 0.0019	u	< 0.0023	u	< 0.0028	u	< 0.0019	u	< 0.0018	u	< 0.002	u
1,1-Dichloroethane	7.86E+01	(1)	3.83E+02	(4)	1.36E-01	(8)	< 0.003	u	< 0.0018	u	< 0.0021	u	< 0.0021	u	< 0.0018	u	< 0.002	u	< 0.0018	u	< 0.0019	u	< 0.0017	u	< 0.002	u	< 0.0025	u	< 0.0017	u	< 0.0017	u	< 0.0018	u
1,1-Dichloroethene	4.40E+02	(1)	4.24E+02	(5)	4.79E-02	(10)	< 0.0186	u	< 0.0111	u	< 0.013	u	< 0.0132	u	< 0.0111	u	< 0.0125	u	< 0.0114	u	< 0.012	u	< 0.0108	u	< 0.0128	u	< 0.0158	u	< 0.0105	u	< 0.0103	u	< 0.0115	u
1,1-Dichloropropene	-	-	-	-	-	-	< 0.0042	u	< 0.0025	u	< 0.003	u	< 0.003	u	< 0.0025	u	< 0.0028	u	< 0.0026	u	< 0.0027	u	< 0.0025	u	< 0.0029	u	< 0.0036	u	< 0.0024	u	< 0.0024	u	< 0.0026	u
Trichlorobenzene, 1,2,3-	6.30E+01	(2)	9.30E+02	(6)	4.20E-01	(9)	< 0.0041	u	< 0.0024	u	< 0.0028	u	< 0.0029	u	< 0.0024	u	< 0.0027	u	< 0.0025	u	< 0.0026	u	< 0.0024	u	< 0.0028	u	< 0.0035	u	< 0.0023	u	< 0.0023	u	< 0.0025	u
1,2,3-Trichloropropane	5.10E-02	(1)	1.21E+00	(4)	5.82E-05	(8)	< 0.0075	u	< 0.0045	u	< 0.0052	u	< 0.0053	u	< 0.0045	u	< 0.005	u	< 0.0046	u	< 0.0048	u	< 0.0044	u	< 0.0052	u	< 0.0064	u	< 0.0043	u	< 0.0042	u	< 0.0047	u
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	3.10E+00	(8)	< 0.0047	u	< 0.0028	u	< 0.0033	u	< 0.0033	u	< 0.0028	u	< 0.0031	u	< 0.0029	u	< 0.003	u	< 0.0027	u	< 0.0032	u	< 0.004	u	< 0.0027	u	< 0.0026	u	< 0.0029	u
Trimethylbenzene, 1,2,4-	3.00E+02	(2)	1.80E+03	(6)	1.62E+00	(9)	< 0.0042	u	< 0.0025	u	< 0.003	u	< 0.003	u	< 0.0025	u	< 0.0026	u	< 0.0027	u	< 0.0025	u	< 0.0029	u	0.012	J	< 0.0024	u	< 0.0024	u	< 0.0024	u	< 0.0026	u
1,2-Dibromo-3-chloropropane	8.58E-02	(1)	1.18E+00	(4)	1.39E-03	(8)	< 0.0048	u	< 0.0029	u	< 0.0033	u	< 0.0034	u	< 0.0029	u	< 0.0032	u	< 0.0029	u	< 0.0031	u	< 0.0028	u	< 0.0033	u	< 0.0041	u	< 0.0027	u	< 0.0027	u	< 0.003	u
1,2-Dibromoethane (Ethylene dibromide)	6.72E-01	(1)	3.31E+00	(4)	2.36E-04	(10)	< 0.0042	u	< 0.0025	u	< 0.003	u	< 0.003	u	< 0.0025	u	< 0.0028	u	< 0.0026	u	< 0.0027	u	< 0.0025	u	< 0.0029	u	< 0.0036	u	< 0.0024	u	< 0.0024	u	< 0.0026	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	9.08E+00	(8)	< 0.0038	u	< 0.0023	u	< 0.0027	u	< 0.0027	u	< 0.0023	u	< 0.0026	u	< 0.0023	u	< 0.0025	u	< 0.0022	u	< 0.0026	u	< 0.0032	u	< 0.0022	u	< 0.0021	u	< 0.0024	u
1,2-Dichloroethane	8.32E+00	(1)	4.07E+01	(4)	2.38E-02	(8)	< 0.0047	u	< 0.0028	u	< 0.0033	u	< 0.0034	u	< 0.0028	u	< 0.0032	u	< 0.0029	u	< 0.0031	u	< 0.0028	u	< 0.0033	u	< 0.004	u	< 0.0027	u	< 0.0026	u	< 0.0029	u
1,2-Dichloropropane	1.78E+01	(1)	2.54E+01	(5)	2.77E-02	(8)	< 0.0034	u	< 0.002	u	< 0.0024	u	< 0.0024	u	< 0.002	u	< 0.0023	u	< 0.0021	u	< 0.0022	u	< 0.002	u	< 0.0023	u	< 0.0029	u	< 0.0019	u	< 0.0019	u	< 0.0021	u
Trimethylbenzene, 1,3,5-	2.70E+02	(2)	1.50E+03	(6)	1.74E+00	(9)	< 0.0045	u	< 0.0027	u	< 0.0031	u	< 0.0032	u	< 0.0027	u	< 0.003	u	< 0.0028	u	< 0.0029	u	< 0.0026	u	< 0.0031	u	< 0.0038	u	< 0.0025	u	< 0.0025	u	< 0.0028	u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.004	u	< 0.0024	u	< 0.0028	u	< 0.0029	u	< 0.0024	u	< 0.0027	u	< 0.0025	u	< 0.0026	u	< 0.0023	u	< 0.0028	u	< 0.0034	u	< 0.0023	u	< 0.0022	u	< 0.0025	u
Dichloropropane, 1,3-	1.60E+03	(2)	2.30E+04	(6)	2.60E+00	(9)	< 0.005	u	< 0.003	u	< 0.0035	u	< 0.0036	u	< 0.003	u	< 0.0034	u	< 0.0031	u	< 0.0032	u	< 0.0029	u	< 0.0035	u	< 0.0043	u	< 0.0028	u	< 0.0028	u	< 0.0031	u
1,4-Dichlorobenzene	1.29E+03	(1)	6.73E+03	(4)	1.12E+00	(8)	< 0.0039	u	< 0.0023	u	< 0.0027	u	< 0.0028	u	< 0.0023	u	< 0.0026	u	< 0.0024	u	< 0.0025	u	< 0.0023	u	< 0.0027	u	< 0.0033	u	< 0.0022	u	< 0.0022	u	< 0.0024	u
1-Methylnaphthalene	1.72E+02	(1)	8.13E+02	(4)	8.93E-01	(8)	< 0.0267	u	< 0.016	u	< 0.0186	u	< 0.019	u	< 0.016	u	< 0.0179	u	< 0.0164	u	< 0.0172	u	< 0.0155	u	< 0.0184	u	< 0.0227	u	< 0.0151	u	< 0.0149	u	< 0.0166	u
2,2-Dichloropropane	-	-	-	-	-	-	< 0.0151	u	< 0.009	u	< 0.0105	u	< 0.0107	u	< 0.009	u	< 0.0101	u	< 0.0093	u	< 0.0097	u	< 0.0088	u	< 0.0104	u	< 0.0129	u	< 0.0086	u	< 0.0084	u	< 0.0094	u
2-Butanone (Methyl ethyl ketone, MEK)	3.74E+04	(1)	9.17E+04	(5)	2.01E+01	(8)	< 0.0538	u	0.05	J	0.039	J	0.041	J	< 0.0322	u	0.083	J	< 0.033	u	0.06	J	0.058	J	0.061	J	< 0.0457	u	0.056	J	0.046	J	0.052	J
o-Chlorotoluene	1.56E+03	(1)	7.08E+03	(5)	3.56E+00	(8)	< 0.004	u	< 0.0024	u	< 0.0028	u	< 0.0029	u	< 0.0024	u	< 0.0027	u	< 0.0025	u	< 0.0026	u	< 0.0023	u	< 0.0028	u	< 0.0034	u	< 0.0023	u	< 0.0023	u	< 0.0025	u
Hexanone, 2-	2.00E+02	(2)	1.30E+03	(6)	1.76E-01	(9)	< 0.0077	u	< 0.0046	u	< 0.0054	u	< 0.0055	u	< 0.0046	u	< 0.0052	u	< 0.0047	u	< 0.005	u	< 0.0045	u	< 0.0053	u	< 0.0066	u	< 0.0044	u	< 0.0043	u	< 0.0048	u
2-Methylnaphthalene	2.32E+02	(1)	1.00E+03	(5)	2.76E+00	(8)	< 0.0203	u	< 0.0122	u	< 0.0142	u	< 0.0144	u	< 0.0122	u	< 0.0136	u	< 0.0124	u	< 0.0131	u	< 0.0118	u	< 0.014	u	< 0.0173	u	< 0.0115	u	< 0.0113	u	< 0.0126	u
Chlorotoluene, p-	1.60E+03	(2)	2.30E+04	(6)	4.80E+00	(9)	< 0.0038	u	< 0.0023	u	< 0.0027	u	< 0.0027	u	< 0.0023	u	< 0.0026	u	< 0.0023	u	< 0.0025	u	< 0.0022	u	< 0.0026	u	< 0.0032	u	< 0.0022	u	< 0.0021	u	< 0.0024	u
4-Isopropyltoluene	-	-	-	-	-	-	< 0.0038	u	< 0.0023	u	< 0.0027	u	< 0.0027	u	< 0.0023	u	< 0.0026	u	< 0.0024	u	< 0.0025	u	< 0.0022	u	< 0.0027	u	< 0.0033	u	< 0.0022	u	< 0.0021	u	< 0.0024	u
Methyl isobutyl ketone	5.81E+03	(1)	2.02E+04	(5)	4.80E+00	(8)	< 0.0088	u	< 0.0053	u	< 0.0061	u	< 0.0062	u	< 0.0053	u	< 0.0059	u	< 0.0054	u	< 0.0057	u	< 0.0051	u	< 0.006	u	< 0.0075	u	< 0.005	u	< 0.0049	u	< 0.0054	u
Acetone	6.63E+04	(1)	2.42E+05	(5)	4.98E+01	(8)	< 0.0385	u	< 0.0231	u	< 0.0269	u	< 0.0273	u	< 0.023	u	< 0.0258	u	< 0.0236	u	< 0.0248	u	< 0.0223	u	< 0.0265	u	< 0.0328	u	< 0.0218	u	< 0.0214	u	< 0.0239	u
Benzene	1.78E+01	(1)	8.72E+01	(4)	4.18E-02	(8)	0.0056	J	< 0.0023	u	< 0.0027	u	< 0.0027	u	< 0.0023	u	< 0.0025	u	< 0.0023	u	< 0.0025	u	0.008	J	< 0.0026	u	< 0.0032	u	< 0.0022	u	< 0.0021	u	< 0.0024	u
Bromobenzene	2.90E+02	(2)	1.80E+03	(6)	8.40E-01	(9)	< 0.0045	u	< 0.0027	u	< 0.0031	u	< 0.0032	u	< 0.0027	u	< 0.003	u	< 0.0027	u	< 0.0029	u	< 0.0026	u	< 0.0031	u	< 0.0038	u	< 0.0025	u	< 0.0025	u	< 0.0028	u
Bromodichloromethane	6.19E+00	(1)	3.02E+01	(4)	6.21E-03	(8)	< 0.0042	u	< 0.0025	u	< 0.003	u	< 0.003	u	< 0.0025	u	< 0.0028	u	< 0.0026	u	< 0.0027	u	< 0.0025	u	< 0.0029	u	< 0.0036	u	< 0.0024	u	< 0.0024	u	< 0.0026	u
Tribromomethane (Bromoform)	6.74E+02	(1)	1.76E+03	(4)	1.47E-01	(8)	< 0.0042	u	< 0.0025	u	< 0.0029	u	< 0.003	u	< 0.0025	u	< 0.0028	u	< 0.0026	u	< 0.0027	u	< 0.0024	u	< 0.0029	u	< 0.0036	u	< 0.0024	u	< 0.0023	u	< 0.0026	u
Bromomethane	1.77E+01	(1)	1.79E+01	(5)	3.43E-02	(8)	< 0.0112	u	< 0.0067	u	< 0.0078	u	< 0.0079	u	< 0.0067	u	< 0.0075	u	< 0.0069	u	< 0.0072	u	< 0.0065	u	< 0.0077	u	< 0.0095	u	< 0.0063	u	< 0.0062	u	< 0.0069	u
Carbon disulfide	1.55E+03	(1)	1.62E+03	(5)	4.42E+00	(8)	< 0.0153	u	< 0.0092	u	< 0.0107	u	< 0.0109	u	< 0.0092	u	< 0.0103	u	< 0.0094	u	< 0.0099	u	< 0.0089	u	< 0.0106	u	< 0.0131	u	< 0.0087	u	< 0.0085	u	< 0.0095	u
Carbon tetrachloride	1.07E+01	(1)	5.25E+01	(4)	3.67E-02	(8)	< 0.0044	u	< 0.0026	u	< 0.0031	u	< 0.0031	u	< 0.0026	u	< 0.003	u	< 0.0027	u	< 0.0028	u	< 0.0026	u	< 0.003	u	< 0.0037	u	< 0.0025	u	< 0.0025	u	< 0.0027	u
Chlorobenzene (Monochlorobenzene	3.78E+02	(1)	4.12E+02	(5)	1.08E+00	(8)	< 0.006	u	< 0.0036	u	< 0.0042	u	< 0.0042	u	< 0.0036	u	< 0.004	u	< 0.0036	u	< 0.0038	u	< 0.0035	u	< 0.0041	u	< 0.0051	u	< 0.0034	u	< 0.0033	u	< 0.0037	u
Ethyl chloride	1.90E+04	(1)	1.66E+04	(5)	1.07E+02	(8)	< 0.0068	u	< 0.0041	u	< 0.0048	u	< 0.0049	u	< 0.0041	u	< 0.0046	u	< 0.0042	u	< 0.0044	u	< 0.004	u	< 0.0047	u	< 0.0058	u	< 0.0039	u	< 0.0038	u	< 0.0042	u
Chloroform	5.90E+00	(1)	2.87E+01	(4)	1.09E-02	(8)	< 0.0037	u	< 0.0022	u	< 0.0026	u	< 0.0026	u	< 0.0022	u	< 0.0025	u	< 0.0023	u	< 0.0024	u	< 0.0022	u	< 0.0026	u	< 0.0032	u	< 0.0021	u	< 0.0021	u	< 0.0023	u
Chloromethane	4.11E+01	(1)	2.01E+02	(4)	9.52E-02	(8)	< 0.0044	u	< 0.0027	u	< 0.0031	u	< 0.0032	u	< 0.0027	u	< 0.003	u	< 0.0027	u	< 0.0029	u	< 0.0026	u	< 0.0031	u	< 0.0038	u	< 0.0025	u	< 0.0025	u	< 0.0028	u
cis-1,2-Dichloroethene	1.56E+02	(1)	7.08E+02	(5)	3.52E-01	(8)	< 0.0064	u	< 0.0038	u	< 0.0044	u	< 0.0045	u	< 0.0038	u	< 0.0043	u	< 0.0039	u	< 0.0041	u	< 0.0037	u	< 0.0044	u	< 0.0054	u	< 0.0036	u	< 0.0035	u	< 0.0039	u
cis-1,3-Dichloropropene	-	-	-	-	-	-	< 0.0039	u	< 0.0023	u	< 0.0027	u	< 0.0028	u	< 0.0023	u	< 0.0026	u	< 0.0024	u	< 0.0025	u	< 0.0023	u	< 0.0027	u	< 0.0033	u	< 0.0022	u	< 0.0022	u	< 0.0024	u
Dibromochloromethane	1.39E+01	(1)	6.74E+01	(4)	7.55E-03	(8)	< 0.0033	u	< 0.002	u	< 0.0023	u	< 0.0023	u	< 0.002	u	< 0.0022	u	< 0.002	u	< 0.0021	u	< 0.0019	u	< 0.0023	u	< 0.0028	u	< 0.0019	u	< 0.0018	u	< 0.002	u

Table 5 - Soil Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

NMED constitutent name	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SL-5 (6-8')		SL-5 (12-14')		SL-6 (0-0.5')		SL-6 (2-2.5')		SL-6 (6-8')		SL-6 (12-14')		SL-7 (0-0.5')		SL-7 (2-2.5')		SL-7 (2.5-4')		SL-7 (10-12')		SL-8 (0-0.5')		SL-8 (2-2.5')		SL-8 (2.5-4')		SL-8 (12-14')	
					Lab ID		10/30/2019		10/30/2019		10/31/2019		10/31/2019		10/31/2019		10/31/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019	
					Sample Date		1910g04-006		1910g04-008		1910g20-001		1910g20-002		1910g20-003		1910g20-004		1911107-001		1911107-002		1911107-003		1911107-004		1911107-005		1911107-006		1911107-007		1911107-008	
Dibromomethane (Methylene Bromide)	2.40E+01	(2)	9.90E+01	(6)	4.20E-02	(9)	< 0.005	u	< 0.003	u	< 0.0035	u	< 0.0035	u	< 0.003	u	< 0.0034	u	< 0.0031	u	< 0.0032	u	< 0.0029	u	< 0.0034	u	< 0.0043	u	< 0.0028	u	< 0.0028	u	< 0.0031	u
Dichlorodifluoromethane	1.82E+02	(1)	1.61E+02	(5)	7.23E+00	(8)	< 0.0108	u	< 0.0065	u	< 0.0075	u	< 0.0076	u	< 0.0065	u	< 0.0072	u	< 0.0066	u	< 0.007	u	< 0.0063	u	< 0.0074	u	< 0.0092	u	< 0.0061	u	< 0.006	u	< 0.0067	u
Ethylbenzene	7.51E+01	(1)	3.68E+02	(4)	1.23E+01	(8)	< 0.0027	u	< 0.0016	u	< 0.0019	u	< 0.0019	u	< 0.0016	u	< 0.0018	u	< 0.0017	u	< 0.0017	u	< 0.0016	u	< 0.0019	u	< 0.0023	u	< 0.0015	u	< 0.0015	u	< 0.0017	u
Hexachloro-1,3-butadiene	6.16E+01	(1)	5.21E+01	(4)	4.13E-02	(8)	< 0.0047	u	< 0.0028	u	< 0.0033	u	< 0.0034	u	< 0.0028	u	< 0.0032	u	< 0.0029	u	< 0.003	u	< 0.0027	u	< 0.0033	u	< 0.004	u	< 0.0027	u	< 0.0026	u	< 0.0029	u
Cumene (isopropylbenzene)	2.36E+03	(1)	2.74E+03	(5)	1.14E+01	(8)	< 0.0033	u	< 0.002	u	< 0.0023	u	< 0.0024	u	< 0.002	u	< 0.0022	u	< 0.0021	u	< 0.0022	u	< 0.0019	u	< 0.0023	u	< 0.0028	u	< 0.0019	u	< 0.0019	u	< 0.0021	u
tert-Butyl methyl ether (MTBE)	9.75E+02	(1)	4.82E+03	(4)	5.53E-01	(8)	< 0.011	u	< 0.0066	u	< 0.0077	u	< 0.0078	u	< 0.0066	u	< 0.0074	u	< 0.0068	u	< 0.0071	u	< 0.0064	u	< 0.0076	u	< 0.0094	u	< 0.0062	u	< 0.0061	u	< 0.0068	u
Methylene chloride (Dichloromethan	4.09E+02	(1)	1.21E+03	(5)	2.21E-02	(10)	< 0.0082	u	< 0.0049	u	< 0.0057	u	< 0.0058	u	< 0.0049	u	0.01	J	< 0.005	u	< 0.0053	u	< 0.0048	u	< 0.0057	u	< 0.007	u	< 0.0047	u	0.0087	J	< 0.0051	u
Naphthalene	1.16E+03	(1)	5.02E+03	(5)	8.23E-02	(8)	< 0.0093	u	< 0.0056	u	< 0.0065	u	< 0.0066	u	< 0.0056	u	< 0.0062	u	< 0.0057	u	< 0.006	u	< 0.0054	u	< 0.0064	u	< 0.0079	u	< 0.0053	u	< 0.0052	u	< 0.0058	u
Butylbenzene, n-	3.90E+03	(2)	5.80E+04	(6)	6.40E+01	(9)	< 0.0043	u	< 0.0026	u	< 0.003	u	< 0.0031	u	< 0.0026	u	< 0.0029	u	< 0.0027	u	< 0.0028	u	< 0.0025	u	< 0.003	u	< 0.0037	u	< 0.0025	u	< 0.0024	u	< 0.0027	u
Propyl benzene	3.80E+03	(2)	2.40E+04	(6)	2.40E+01	(9)	< 0.0037	u	< 0.0022	u	< 0.0026	u	< 0.0026	u	< 0.0022	u	< 0.0025	u	< 0.0023	u	< 0.0024	u	< 0.0021	u	< 0.0026	u	< 0.0032	u	< 0.0021	u	< 0.0021	u	< 0.0023	u
Butylbenzene, sec-	7.80E+03	(2)	1.20E+05	(6)	1.18E+02	(9)	< 0.0052	u	< 0.0031	u	< 0.0037	u	< 0.0037	u	< 0.0031	u	< 0.0035	u	< 0.0032	u	< 0.0034	u	< 0.003	u	< 0.0036	u	< 0.0045	u	< 0.003	u	< 0.0029	u	< 0.0032	u
Styrene	7.26E+03	(1)	1.02E+04	(5)	1.71E+00	(10)	< 0.0036	u	< 0.0022	u	< 0.0025	u	< 0.0026	u	< 0.0022	u	< 0.0024	u	< 0.0022	u	< 0.0024	u	< 0.0021	u	< 0.0025	u	< 0.0031	u	< 0.0021	u	< 0.002	u	< 0.0023	u
Butylbenzene, tert-	7.80E+03	(2)	1.20E+05	(6)	3.20E+01	(9)	< 0.0044	u	< 0.0026	u	< 0.0031	u	< 0.0031	u	< 0.0026	u	< 0.0029	u	< 0.0027	u	< 0.0028	u	< 0.0025	u	< 0.003	u	< 0.0037	u	< 0.0025	u	< 0.0024	u	< 0.0027	u
Tetrachloroethene	1.11E+02	(1)	1.20E+02	(5)	3.98E-02	(10)	< 0.0037	u	< 0.0022	u	< 0.0026	u	< 0.0026	u	< 0.0022	u	< 0.0025	u	< 0.0023	u	< 0.0024	u	< 0.0022	u	< 0.0026	u	< 0.0032	u	< 0.0021	u	< 0.0021	u	< 0.0023	u
Toluene	5.23E+03	(1)	1.40E+04	(5)	1.11E+01	(10)	< 0.0044	u	< 0.0027	u	< 0.0031	u	< 0.0032	u	< 0.0027	u	< 0.003	u	< 0.0027	u	< 0.0029	u	< 0.0026	u	< 0.0031	u	< 0.0038	u	< 0.0025	u	< 0.0025	u	< 0.0028	u
trans-1,2-Dichloroethene	2.95E+02	(1)	3.05E+02	(5)	5.03E-01	(8)	< 0.0043	u	< 0.0025	u	< 0.003	u	< 0.003	u	< 0.0025	u	< 0.0029	u	< 0.0026	u	< 0.0027	u	< 0.0025	u	< 0.0029	u	< 0.0036	u	< 0.0024	u	< 0.0024	u	< 0.0026	u
trans-1,3-Dichloropropene	-	-	-	-	-	-	< 0.0049	u	< 0.0029	u	< 0.0034	u	< 0.0035	u	< 0.0029	u	< 0.0033	u	< 0.003	u	< 0.0032	u	< 0.0029	u	< 0.0034	u	< 0.0042	u	< 0.0028	u	< 0.0027	u	< 0.003	u
Trichloroethylene	6.77E+00	(1)	6.90E+00	(5)	3.10E-02	(8)	< 0.0054	u	< 0.0032	u	< 0.0038	u	< 0.0038	u	< 0.0032	u	< 0.0036	u	< 0.0033	u	< 0.0035	u	< 0.0031	u	< 0.0037	u	< 0.0046	u	< 0.003	u	< 0.003	u	< 0.0033	u
Trichlorofluoromethane	1.23E+03	(1)	1.13E+03	(5)	1.57E+01	(8)	< 0.0158	u	< 0.0094	u	< 0.011	u	< 0.0112	u	< 0.0094	u	< 0.0106	u	< 0.0097	u	< 0.0102	u	< 0.0091	u	< 0.0109	u	< 0.0134	u	< 0.0089	u	< 0.0088	u	< 0.0098	u
Vinyl chloride	7.42E-01	(1)	2.84E+01	(4)	1.34E-02	(8)	< 0.003	u	< 0.0018	u	< 0.0021	u	< 0.0022	u	< 0.0018	u	< 0.002	u	< 0.0019	u	< 0.002	u	< 0.0018	u	< 0.0021	u	< 0.0026	u	< 0.0017	u	< 0.0017	u	< 0.0019	u
Xylenes	8.71E+02	(1)	7.98E+02	(5)	1.54E+02	(8)	< 0.0117	u	< 0.007	u	< 0.0082	u	< 0.0083	u	< 0.007	u	< 0.0079	u	< 0.0072	u	< 0.0076	u	< 0.0068	u	< 0.0081	u	< 0.01	u	< 0.0066	u	< 0.0065	u	< 0.0073	u
Semi-volatiles (mg/kg)																																		
1,2,4-Trichlorobenzene	8.29E+01	(1)	7.91E+01	(5)	3.10E+00	(8)	< 0.1503	u	< 0.1454	u	< 0.7607	u	< 0.1533	u	< 0.1419	u	< 0.1498	u	< 0.7229	u	< 0.1453	u	< 0.154	u	< 0.1528	u	< 1.5283	u	< 0.3002	u	< 0.151	u	< 0.1517	u
1,2-Dichlorobenzene	2.15E+03	(1)	2.50E+03	(5)	9.08E+00	(8)	< 0.1162	u	< 0.1124	u	< 0.588	u	< 0.1185	u	< 0.1097	u	< 0.1158	u	< 0.5588	u	< 0.1123	u	< 0.119	u	< 0.1181	u	< 1.1813	u	< 0.2321	u	< 0.1167	u	< 0.1172	u
1,3-Dichlorobenzene	-	-	-	-	-	-	< 0.1018	u	< 0.0985	u	< 0.5153	u	< 0.1038	u	< 0.0961	u	< 0.1015	u	< 0.4898	u	< 0.0984	u	< 0.1043	u	< 0.1035	u	< 1.0354	u	< 0.2034	u	< 0.1023	u	< 0.1028	u
1,4-Dichlorobenzene	1.29E+03	(1)	6.73E+03	(4)	1.12E+00	(8)	< 0.103	u	< 0.0997	u	< 0.5214	u	< 0.1051	u	< 0.0973	u	< 0.1027	u	< 0.4955	u	< 0.0996	u	< 0.1055	u	< 0.1047	u	< 1.0475	u	< 0.2058	u	< 0.1035	u	< 0.104	u
1-Methylnaphthalene	1.72E+02	(1)	8.13E+02	(7)	8.93E-01	(8)	< 0.1447	u	< 0.1401	u	< 0.7326	u	< 0.1476	u	< 0.1367	u	< 0.1443	u	< 0.6962	u	< 0.1399	u	< 0.1483	u	< 0.1471	u	< 1.4719	u	< 0.2892	u	< 0.1454	u	< 0.1461	u
2,4,5-Trichlorophenol	6.16E+03	(1)	2.69E+04	(5)	6.62E+01	(8)	< 0.1253	u	< 0.1213	u	< 0.6345	u	< 0.1279	u	< 0.1184	u	< 0.1249	u	< 0.603	u	< 0.1212	u	< 0.1285	u	< 0.1274	u	< 1.2749	u	< 0.2505	u	< 0.1259	u	< 0.1265	u
2,4,6-Trichlorophenol	6.16E+01	(1)	2.69E+02	(5)	6.74E-01	(8)	< 0.1016	u	< 0.0984	u	< 0.5145	u	< 0.1037	u	< 0.096	u	< 0.1013	u	< 0.489	u	< 0.0983	u	< 0.1042	u	< 0.1033	u	< 1.0337	u	< 0.2031	u	< 0.1021	u	< 0.1026	u
2,4-Dichlorophenol	1.85E+02	(1)	8.07E+02	(5)	8.25E-01	(8)	< 0.1125	u	< 0.1088	u	< 0.5693	u	< 0.1147	u	< 0.1062	u	< 0.1121	u	< 0.541	u	< 0.1087	u	< 0.1152	u	< 0.1143	u	< 1.1438	u	< 0.2247	u	< 0.113	u	< 0.1135	u
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	6.45E+00	(8)	< 0.1066	u	< 0.1031	u	< 0.5394	u	< 0.1087	u	< 0.1006	u	< 0.1062	u	< 0.5127	u	< 0.103	u	< 0.1092	u	< 0.1083	u	< 1.0838	u	< 0.2129	u	< 0.107	u	< 0.1076	u
2,4-Dinitrophenol	1.23E+02	(1)	5.38E+02	(5)	6.69E-01	(8)	< 0.0703	u	< 0.068	u	< 0.3556	u	< 0.0717	u	< 0.0663	u	< 0.07	u	< 0.338	u	< 0.0679	u	< 0.072	u	< 0.0714	u	< 0.7145	u	< 0.1404	u	< 0.0706	u	< 0.0709	u
2,4-Dinitrotoluene	1.71E+01	(1)	8.23E+01	(4)	4.92E-02	(8)	< 0.114	u	< 0.1103	u	< 0.5769	u	< 0.1163	u	< 0.1076	u	< 0.1136	u	< 0.5483	u	< 0.1102	u	< 0.1168	u	< 0.1159	u	< 1.1591	u	< 0.2277	u	< 0.1145	u	< 0.115	u
2,6-Dintitrotoluene	3.56E+00	(1)	1.72E+01	(4)	1.02E-02	(8)	< 0.1273	u	< 0.1232	u	< 0.6442	u	< 0.1298	u	< 0.1202	u	< 0.1268	u	< 0.6122	u	< 0.1231	u	< 0.1304	u	< 0.1294	u	< 1.2943	u	< 0.2543	u	< 0.1278	u	< 0.1285	u
b-Chloronaphthalene	6.26E+03	(1)	2.83E+04	(5)	5.70E+01	(8)	< 0.1207	u	< 0.1168	u	< 0.6108	u	< 0.1231	u	< 0.1139	u	< 0.1203	u	< 0.5804	u	< 0.1167	u	< 0.1236	u	< 0.1227	u	< 1.2271	u	< 0.2411	u	< 0.1212	u	< 0.1218	u
2-Chlorophenol	3.91E+02	(1)	1.77E+03	(5)	1.15E+00	(8)	< 0.1203	u	< 0.1164	u	< 0.6089	u	< 0.1227	u	< 0.1136	u	< 0.1199	u	< 0.5787	u	< 0.1163	u	< 0.1233	u	< 0.1223	u	< 1.2234	u	< 0.2403	u	< 0.1208	u	< 0.1214	u
2-Methylnaphthalene	2.32E+02	(1)	1.00E+03	(5)	2.76E+00	(8)	< 0.1409	u	< 0.1363	u	< 0.7131	u	< 0.1437	u	< 0.133	u	< 0.1404	u	< 0.6777	u	< 0.1362	u	< 0.1444	u	< 0.1432	u	< 1.4327	u	< 0.2815	u	< 0.1415	u	< 0.1422	u
Cresol, o-	3.20E+03	(2)	4.10E+04	(6)	1.50E+01	(9)	< 0.1147	u	< 0.111	u	< 0.5805	u	< 0.117	u	< 0.1083	u	< 0.1143	u	< 0.5517	u	< 0.1109	u	< 0.1175	u	< 0.1166	u	< 1.1663	u	< 0.2291	u	< 0.1152	u	< 0.1158	u
Nitroaniline, 2-	6.30E+02	(2)	8.00E+03	(6)	1.60E+00	(9)	< 0.1381	u	< 0.1337	u	< 0.699	u	< 0.1409	u	< 0.1304	u	< 0.1377	u	< 0.6643	u	< 0.1335	u	< 0.1415	u	< 0.1404	u	< 1.4045	u	< 0.2759	u	< 0.1387	u	< 0.1394	u
2-Nitrophenol	-	-	-	-	-	-	< 0.132	u	< 0.1278	u	< 0.6684	u	< 0.1347	u	< 0.1247	u	< 0.1316	u	< 0.6352	u	< 0.1277	u	< 0.1353	u	< 0.1342	u	< 1.3428	u	< 0.2638	u	< 0.1326	u	< 0.1333	u
3,3-Dichlorobenzidine	1.18E+01	(1)	5.70E+01	(4)	1.24E-01	(8)	< 0.086	u	< 0.0832	u	< 0.4351	u	< 0.0877	u	< 0.0812	u	< 0.0857	u	< 0.4135	u	< 0.0831	u	< 0.0881	u	< 0.0874	u	< 0.8742	u	< 0.1717	u	< 0.0863	u	< 0.0868	u
3+4-Methylphenol	-	-	-	-	-	-	< 0.1187	u	< 0.1149	u	< 0.6007	u	< 0.1211	u	< 0.1121	u	< 0.1183	u	< 0.5709	u	< 0.1148	u	< 0.1216	u	< 0.1207	u	< 1.207	u	< 0.2371	u	< 0.1192	u	< 0.1198	u
3-Nitroaniline	-	-	-	-	-	-	< 0.1334	u	< 0.1291	u	< 0.6754	u	< 0.1361	u	< 0.126	u	< 0.133	u	< 0.6418	u	< 0.129	u	< 0.1367	u	< 0.1356	u	< 1.3569	u	< 0.2666	u	< 0.134	u	< 0.1347	u
4,6-Dinitro-o-cresol	4.93E+00	(1)	2.15E+01	(5)	3.98E-02	(8)	< 0.0893	u	< 0.0864	u	< 0.4521	u	< 0.0911	u	< 0.0843	u	< 0.089	u	< 0.4297	u	< 0.0864	u	< 0.0915	u	< 0.0908	u	< 0.9084	u	< 0.1785	u	< 0.0897	u	< 0.0902	u
4-Bromophenyl phenyl ether	-	-	-	-	-	-	< 0.1137	u	< 0.11	u	< 0.5754	u	< 0.1159	u	< 0.1073	u	< 0.1133	u	< 0.5468	u	< 0.1099	u	< 0.1165	u	< 0.1156	u	< 1.156	u	< 0.2271	u	< 0.1142	u	< 0.1147	u
4-Chloro-3-methylphenol	-	-	-	-	-	-	< 0.1484	u	< 0.1436	u	< 0.751	u	< 0.1513	u	< 0.1401	u	< 0.1479	u	< 0.7137	u	< 0.1434	u	< 0.152	u	< 0.1508	u	< 1.5088	u	< 0.2964	u	< 0.149	u	< 0.1498	u
Chloroaniline, p-	2.70E+01	(3)	1.10E+02	(7)	3.20E-03	(9)	< 0.137	u	< 0.1326	u	< 0.6934	u	< 0.1397	u	< 0.1293	u	< 0.1365	u	< 0.659	u	< 0.1324	u	< 0.1404	u	< 0.1393	u	< 1.3931	u	< 0.2737	u	< 0.1376	u	< 0.1383	u
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	< 0.1054	u	< 0.102	u	< 0.5335	u	< 0.1075	u	< 0.0995	u	< 0.105	u	< 0.507	u	< 0.1019	u	< 0.108	u	< 0.1071	u	< 1.0718	u	< 0.2106	u	< 0.1059	u	< 0.1064	u
Nitroaniline, 4-	2.70E+02	(3)	1.10E+03	(7)	3.20E-02	(9)	< 0.1235	u	< 0.1195	u	< 0.625	u	< 0.1259	u	< 0.1166	u	< 0.1231	u	< 0.594	u	< 0.1194	u	< 0.1265	u	< 0.1255	u	< 1.2557	u	< 0.2467	u	< 0.124	u	< 0.1246	u
4-Nitrophenol	-	-	-	-	-	-	< 0.1311	u	< 0.1269	u	< 0.6638	u	< 0.1338	u	< 0.1238	u	< 0.1307	u	< 0.6308	u	< 0.1268	u	< 0.1344	u	< 0.1333	u	< 1.3336	u	< 0.262	u	< 0.1317	u	< 0.1324	u
Acenaphthene	3.48E+03	(1)	1.51E+04	(5)	8.25E+01	(8)	< 0.116	u	< 0.1123	u	< 0.5872	u	< 0.1183	u	< 0.1095	u	< 0.1156	u	< 0.558	u	< 0.1122	u	< 0.1189	u	< 0.1179	u	< 1.1797	u	< 0.2318	u	< 0.1165	u	< 0.1171	u
Acenaphthylene	-	-	-	-	-	-	< 0.106	u	< 0.1026	u	< 0.5365	u	< 0.1081	u	< 0.1001	u	< 0.1056	u	< 0.5098	u	< 0.1025	u	< 0.1086	u	< 0.1078	u	< 1.0779	u	< 0.2118	u	< 0.1065	u	< 0.107	u
Aniline	9.50E+02	(3)	4.00E+03	(7)	9.20E-02	(9)	< 0.1243	u	< 0.1203	u	< 0.6294	u	< 0.1268	u	< 0.1174	u	< 0.1239	u	< 0.5981	u	< 0.1202	u	< 0.1274	u	< 0.1264	u	< 1.2645	u	< 0.2484	u	< 0.1249	u	< 0.1255	u
Anthracene	1.74E+04	(1)	7.53E+04	(5)	8.51E+02	(8)	< 0.1034	u	< 0.1001	u	< 0.5233	u	< 0.1055	u	< 0.0976	u	< 0.1031	u	< 0.4974	u	< 0.1	u	< 0.1059	u	< 0.1051	u	< 1.0515	u	< 0.2066	u	< 0.1039	u	< 0.1044	u
Azobenzene	5.60E+01	(3)	2.60E+02	(7)	1.86E+06	(9)	< 0.1354	u	< 0.131	u	< 0.6852	u	< 0.1381	u	< 0.1278	u	< 0.1349	u	< 0.6512	u	< 0.1309	u	< 0.1387	u	< 0.1376	u	< 1.3767	u	< 0.2705	u	< 0.136	u	< 0.1366	u
Benzo(a)anthracene	1.53E+00	(1)	3.23E+01	(4)	6.37E-01	(8)	< 0.0932	u	< 0.0902	u	< 0.4716	u	< 0.095	u	< 0.088	u	< 0.0929	u	< 0.4482	u	< 0.0901	u	< 0.0955	u	< 0.0947	u	< 0.9475	u	< 0.1861	u	< 0.0936	u	< 0.094	u
Benzo(a)pyrene	1.12E+00	(1)	2.36E+01	(4)	3.53E+00	(10)	< 0.0859	u	< 0.0832	u	< 0.435	u	< 0.0877	u	< 0.0811	u	< 0.0857	u	< 0.4134	u	< 0.0831	u	< 0.0881	u	< 0.0874	u	< 0.874	u	< 0.1717	u	< 0.0863	u	< 0.0867	u
Benzo(b)fluoranthene	1.53E+00	(1)	3.23E+01	(4)	6.17E+00	(8)	< 0.0855	u	< 0.0828	u	< 0.4329	u	< 0.0872	u	< 0.0808	u	< 0.0852	u	< 0.4114	u	< 0.0827	u	< 0.0876	u	< 0.0869	u	< 0.8698	u	< 0.1709	u	< 0.0859	u	< 0.0863	u
Benzo(g,h,i)perylene	-	-	-	-	-	-	< 0.0829	u	< 0.0803	u	< 0.4198	u	< 0.0846	u	< 0.0783	u	< 0.0827	u	< 0.399	u	< 0.0802	u	< 0.085	u	< 0.0843	u	< 0.8435	u	< 0.1657	u	< 0.0833	u	< 0.0837	u
Benzo(k)fluoranthene	1.53E+01	(1)	3.23E+02	(4)	6.05E+01	(8)	< 0.0879	u	< 0.0851	u	< 0.4449	u	< 0.0896	u	< 0.083	u	< 0.0876	u	< 0.4228	u	< 0.085	u	< 0.0901	u	< 0.0894	u	< 0.8938	u	< 0.1756	u	< 0.0883	u	< 0.0887	u
Benzoic acid	2.50E+05	(2)	3.30E+06	(6)	3.00E+02	(9)	< 0.0999	u	< 0.0967	u	< 0.5055	u	< 0.1019	u	< 0.0943	u	< 0.0995	u	< 0.4804	u	< 0.0966	u	< 0.1023	u	< 0.1015	u	< 1.0157	u	< 0.1995	u	< 0.1003	u	< 0.1008	u
Benzyl alcohol	6.30E+03	(2)	8.20E+04	(6)	9.60E+00	(9)	< 0.12	u	< 0.1161	u	< 0.6073	u	< 0.1224	u	< 0.1133	u	< 0.1196	u	< 0.5771	u	< 0.116	u	< 0.1229	u	< 0.122	u	< 1.2201	u	< 0.2397	u	< 0.1205	u	< 0.1211	u
Bis(2-chloroethoxy)methane	1.90E+02	(2)	2.50E+03	(6)	2.60E-01	(9)	< 0.1429	u	< 0.1383	u	< 0.7235	u	< 0.1458	u	< 0.135	u	< 0.1425	u	< 0.6876	u	< 0.1382	u	< 0.1465	u	< 0.1453	u	< 1.4537	u	< 0.2856	u	< 0.1436	u	< 0.1443	u
Bis(2-chloroethyl) ether	3.11E+00	(1)	1.95E+00	(5)	6.05E-04	(8)	< 0.1178	u	< 0.1141	u	< 0.5965	u	< 0.1202	u	< 0.1113	u	< 0.1175	u	< 0.5669	u	< 0.1139	u	< 0.1208	u	< 0.1198	u	< 1.1985	u	< 0.2355	u	< 0.1184	u	< 0.119	u
Bis(2-chloroisopropyl) ether	9.93E+01	(1)	5.19E+02	(4)	4.75E-02	(8)	< 0.1101	u	< 0.1065	u	< 0.5572	u	< 0.1123	u	< 0.1039	u	< 0.1097	u	< 0.5295	u	< 0.1064	u	< 0.1128	u	< 0.1119	u	< 1.1195	u	< 0.2199	u	< 0.1106	u	< 0.1111	u
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate, DEHP]	3.80E+02	(1)	1.83E+03	(4)	2.15E+01	(10)	0.15	J	< 0.1344	u	< 0.7032	u	0.14	J	< 0.1312	u	< 0.1385	u	< 0.6683	u	< 0.1343	u	< 0.1424	u	< 0.1412	u	< 1.4128	u	< 0.2776	u	< 0.1395	u	< 0.1402	u
Butyl Benzyl Phthalate	2.90E+03	(3)	1.20E+04	(7)	4.60E+00	(9)	< 0.0988	u	< 0.0957	u	< 0.5003	u	< 0.1008	u	< 0.0933	u	< 0.0985	u	< 0.4755	u	< 0.0956	u	< 0.1013	u	< 0.1005	u	< 1.0052	u	< 0.1975	u	< 0.0993	u	< 0.0998	u
Carbazole	-	-	-	-	-	-	< 0.1134	u	< 0.1097	u	< 0.574	u	< 0.1157	u	< 0.1071	u	< 0.113	u	< 0.5455	u	< 0.1096	u	< 0.1162	u	< 0.1153	u	< 1.1532	u	< 0.2266	u	< 0.1139	u	< 0.1145	u
Chrysene	1.53E+02	(1)	3.23E+03	(4)	1.86E+02	(8)	< 0.0853	u	< 0.0825	u	< 0.4316	u	< 0.087	u	< 0.0805	u	< 0.085	u	< 0.4102	u	< 0.0825	u	< 0.0874	u	< 0.0867	u	< 0.8672	u	< 0.1704	u	< 0.0857	u	< 0.0861	u
Dibenz(a,h)anthracene	1.53E-01	(1)	3.23E+00	(4)	1.97E+00	(8)	< 0.0879	u	< 0.0851	u	< 0.445	u	< 0.0897	u	< 0.083	u	< 0.0876	u	< 0.4229	u	< 0.085	u	< 0.0901	u	< 0.0894	u	< 0.8941	u	< 0.1756	u	< 0.0883	u	< 0.0887	u
Dibenzofuran	7.30E+01	(2)	1.00E+03	(6)	3.00E+00	(9)	< 0.1267	u	< 0.1226	u	< 0.6414	u	< 0.1292	u	< 0.1196	u	< 0.1263	u	< 0.6096	u	< 0.1225	u	< 0.1298	u	< 0.1288	u	< 1.2887	u	< 0.2532	u	< 0.1273	u	< 0.1279	u

Table 5 - Soil Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

NMED constitutent name	Residential Soil Screening Level	Source	Non-Residential Soil Screening Level	Source	Leachate DAF (20) (mg/kg) SoilGW	Source	SL-5 (6-8')		SL-5 (12-14')		SL-6 (0-0.5')		SL-6 (2-2.5')		SL-6 (6-8')		SL-6 (12-14')		SL-7 (0-0.5')		SL-7 (2-2.5')		SL-7 (2.5-4')		SL-7 (10-12')		SL-8 (0-0.5')		SL-8 (2-2.5')		SL-8 (2.5-4')		SL-8 (12-14')	
					Lab ID		10/30/2019		10/30/2019		10/31/2019		10/31/2019		10/31/2019		10/31/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019		11/4/2019	
					Sample Date		1910g04-006		1910g04-008		1910g20-001		1910g20-002		1910g20-003		1910g20-004		1911107-001		1911107-002		1911107-003		1911107-004		1911107-005		1911107-006		1911107-007		1911107-008	
Diethyl phthalate	4.93E+04	(1)	2.15E+05	(5)	9.79E+01	(8)	< 0.138	u	< 0.1335	u	< 0.6985	u	< 0.1407	u	< 0.1303	u	< 0.1375	u	< 0.6638	u	< 0.1334	u	< 0.1414	u	< 0.1403	u	< 1.4033	u	< 0.2757	u	< 0.1386	u	< 0.1393	u
Dimethyl phthalate (DMP, Phthalic Acid)	6.16E+04	(1)	2.69E+05	(5)	3.57E+00	(8)	< 0.1289	u	< 0.1248	u	< 0.6527	u	< 0.1315	u	< 0.1218	u	< 0.1285	u	< 0.6203	u	< 0.1247	u	< 0.1321	u	< 0.1311	u	< 1.3114	u	< 0.2576	u	< 0.1295	u	< 0.1302	u
Di-n-butyl phthalate (Dibutyl phthalate)	6.16E+03	(1)	2.69E+04	(5)	3.38E+01	(8)	0.25	J	< 0.1397	u	< 0.7305	u	0.22	J	< 0.1363	u	< 0.1439	u	< 0.6943	u	< 0.1395	u	< 0.1479	u	< 0.1467	u	< 1.4678	u	< 0.2884	u	< 0.145	u	< 0.1457	u
Di-n-octyl phthalate	6.30E+02	(2)	8.20E+03	(6)	1.14E+03	(9)	< 0.0987	u	< 0.0955	u	< 0.4994	u	< 0.1006	u	< 0.0932	u	< 0.0983	u	< 0.4746	u	< 0.0954	u	< 0.1011	u	< 0.1003	u	< 1.0034	u	< 0.1971	u	< 0.0991	u	< 0.0996	u
Fluoranthene	2.32E+03	(1)	1.00E+04	(5)	1.34E+03	(8)	< 0.1083	u	< 0.1048	u	< 0.5482	u	< 0.1105	u	< 0.1023	u	< 0.1079	u	< 0.521	u	< 0.1047	u	< 0.111	u	< 0.1101	u	< 1.1014	u	< 0.2164	u	< 0.1088	u	< 0.1093	u
Fluorene	2.32E+03	(1)	1.00E+04	(5)	8.00E+01	(8)	< 0.1102	u	< 0.1067	u	< 0.5578	u	< 0.1124	u	< 0.1041	u	< 0.1098	u	< 0.5301	u	< 0.1066	u	< 0.1129	u	< 0.112	u	< 1.1207	u	< 0.2202	u	< 0.1107	u	< 0.1112	u
Hexachlorobenzene	3.33E+00	(1)	1.17E+02	(5)	1.89E-01	(8)	< 0.1197	u	< 0.1158	u	< 0.6059	u	< 0.1221	u	< 0.113	u	< 0.1193	u	< 0.5758	u	< 0.1157	u	< 0.1227	u	< 0.1217	u	< 1.2174	u	< 0.2392	u	< 0.1202	u	< 0.1208	u
Hexachloro-1,3-butadiene	6.16E+01	(1)	5.21E+01	(4)	4.13E-02	(8)	< 0.1348	u	< 0.1305	u	< 0.6824	u	< 0.1375	u	< 0.1273	u	< 0.1344	u	< 0.6485	u	< 0.1304	u	< 0.1381	u	< 0.1371	u	< 1.3711	u	< 0.2694	u	< 0.1354	u	< 0.1361	u
Hexachlorocyclopentadiene	2.30E+00	(1)	8.67E+02	(5)	2.40E+00	(8)	< 0.1105	u	< 0.107	u	< 0.5595	u	< 0.1128	u	< 0.1044	u	< 0.1102	u	< 0.5318	u	< 0.1069	u	< 0.1133	u	< 0.1124	u	< 1.1242	u	< 0.2209	u	< 0.111	u	< 0.1116	u
Hexachloroethane	1.33E+02	(1)	1.88E+02	(5)	3.20E-02	(8)	< 0.1077	u	< 0.1043	u	< 0.5453	u	< 0.1099	u	< 0.1017	u	< 0.1074	u	< 0.5182	u	< 0.1042	u	< 0.1104	u	< 0.1095	u	< 1.0956	u	< 0.2152	u	< 0.1082	u	< 0.1087	u
Indeno(1,2,3-c,d)pyrene	1.53E+00	(1)	3.23E+01	(4)	2.01E+01	(8)	< 0.0963	u	< 0.0932	u	< 0.4873	u	< 0.0982	u	< 0.0909	u	< 0.0959	u	< 0.4631	u	< 0.0931	u	< 0.0986	u	< 0.0979	u	< 0.979	u	< 0.1923	u	< 0.0967	u	< 0.0972	u
Isophorone	5.61E+03	(1)	2.70E+04	(4)	0.00E+00	(9)	< 0.1424	u	< 0.1378	u	< 0.7207	u	< 0.1452	u	< 0.1344	u	< 0.1419	u	< 0.685	u	< 0.1377	u	< 0.1459	u	< 0.1448	u	< 1.4481	u	< 0.2845	u	< 0.143	u	< 0.1437	u
Naphthalene	1.16E+03	(1)	5.02E+03	(5)	8.23E-02	(8)	< 0.1462	u	< 0.1415	u	< 0.7402	u	< 0.1492	u	< 0.1381	u	< 0.1458	u	< 0.7034	u	< 0.1414	u	< 0.1498	u	< 0.1487	u	< 1.4872	u	< 0.2922	u	< 0.1469	u	< 0.1476	u
Nitrobenzene	6.04E+01	(1)	2.93E+02	(4)	1.44E-02	(8)	< 0.1337	u	< 0.1294	u	< 0.6769	u	< 0.1364	u	< 0.1263	u	< 0.1333	u	< 0.6433	u	< 0.1293	u	< 0.137	u	< 0.136	u	< 1.36	u	< 0.2672	u	< 0.1343	u	< 0.135	u
Nitroso-di-N-propylamine, N-	7.80E-01	(3)	3.30E+00	(7)	1.62E-04	(9)	< 0.138	u	< 0.1336	u	< 0.6988	u	< 0.1408	u	< 0.1304	u	< 0.1376	u	< 0.6641	u	< 0.1335	u	< 0.1415	u	< 0.1404	u	< 1.404	u	< 0.2758	u	< 0.1387	u	< 0.1394	u
N-Nitrosodiphenylamine	1.09E+03	(1)	5.24E+03	(4)	1.00E+01	(8)	< 0.1016	u	< 0.0984	u	< 0.5145	u	< 0.1037	u	< 0.096	u	< 0.1013	u	< 0.489	u	< 0.0983	u	< 0.1042	u	< 0.1033	u	< 1.0338	u	< 0.2031	u	< 0.1021	u	< 0.1026	u
Pentachlorophenol	9.85E+00	(1)	4.45E+01	(4)	1.52E-01	(8)	< 0.0997	u	< 0.0965	u	< 0.5045	u	< 0.1017	u	< 0.0941	u	< 0.0993	u	< 0.4794	u	< 0.0964	u	< 0.1021	u	< 0.1013	u	< 1.0135	u	< 0.1991	u	< 0.1001	u	< 0.1006	u
Phenanthrene	1.74E+03	(1)	7.53E+03	(5)	8.59E+01	(8)	< 0.1047	u	< 0.1013	u	< 0.5298	u	< 0.1068	u	< 0.0988	u	< 0.1043	u	< 0.5035	u	< 0.1012	u	< 0.1072	u	< 0.1064	u	< 1.0644	u	< 0.2091	u	< 0.1051	u	< 0.1056	u
Phenol	1.85E+04	(1)	7.74E+04	(5)	5.23E+01	(8)	< 0.1203	u	< 0.1164	u	< 0.6089	u	< 0.1227	u	< 0.1136	u	< 0.1199	u	< 0.5787	u	< 0.1163	u	< 0.1233	u	< 0.1223	u	< 1.2234	u	< 0.2403	u	< 0.1208	u	< 0.1214	u
Pyrene	1.74E+03	(1)	7.53E+03	(5)	1.92E+02	(8)	< 0.0908	u	< 0.0879	u	< 0.4598	u	< 0.0927	u	< 0.0858	u	< 0.0905	u	< 0.437	u	< 0.0878	u	< 0.0931	u	< 0.0924	u	< 0.9239	u	< 0.1815	u	< 0.0913	u	< 0.0917	u
Pyridine	7.80E+01	(2)	1.20E+03	(6)	1.36E-01	(9)	< 0.1164	u	< 0.1127	u	< 0.5894	u	< 0.1188	u	< 0.11	u	< 0.1161	u	< 0.5602	u	< 0.1126	u	< 0.1193	u	< 0.1184	u	< 1.1843	u	< 0.2327	u	< 0.117	u	< 0.1175	u
Total Petroleum Hydrocarbons (mg/kg)																																		
Gasoline Range Organics (GRO)	1.00E+03	(11)	3.80E+03	(11)	4.61E+03	(11)	< 1.4063	u	< 0.8421	u	< 0.9807	u	< 0.9975	u	< 0.8416	u	< 0.9434	u	< 0.8622	u	< 0.9067	u	< 0.8157	u	< 0.9694	u	< 1.1962	u	< 0.7968	u	< 0.7824	u	< 0.8712	u
Diesel Range Organics (DRO)	1.00E+03	(11)	3.80E+03	(11)	4.61E+03	(11)	< 1.9399	u	< 1.7422	u	54	v	< 1.9399	u	< 1.7167	u	< 1.8868	u	89	v	< 1.7668	u	< 1.9084	u	< 1.8519	u	**2600**	v	46	v	6.2	J	< 1.8975	u
Motor Oil Range Organics (MRO)	1.00E+03	(11)	3.80E+03	(11)	4.61E+03	(11)	< 48.4966	u	< 43.554	u	< 45.6204	u	< 48.4966	u	< 42.9185	u	< 47.1698	u	300	v	< 44.1696	u	< 47.7099	u	< 46.2963	u	740	v	< 45.1671	u	< 47.1254	u	< 47.4383	u
Biological Analyses																																		
Fecal Coliform (MPN/g)	-	-	-	-	-	-	<2.22	u	<2.13	u	NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR		NR	
E. Coli (CFU/10g)	-	-	-	-	-	-	NR		NR		<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	<1	u
Total Coliform (CFU/10g)	-	-	-	-	-	-	NR		NR		positive		<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	<1	u	positive		<1	u	<1	u	<1	u

- No screening level or analytical result available
NMED - Risk Assessment Guidance for Site Investigations and Remediation (March 2019)
EPA - Regional Screening Levels (Nov. 2019)
(1) NMED Residential Screening Level
(2) EPA Residential Screening Level
(3) EPA Residential - Screening Levels multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(4) NMED Industrial Occupational Screening Level
(5) NMED Construction Worker Screening Level
(6) EPA Industrial - Screening Levels
(7) EPA Industrial - Screening Levels multiplied by 10 pursuant to Section IV.D.2 of the Oct. 31, 2013 RCRA Post-Closure Permit because the constituent is listed as carcinogenic
(8) SoilGW NMED Cw Dilution Attenuation Factor (DAF) = 20
(9) SoilGW Risk-based EPA DAF = 20
(10) SoilGW MCL-based NMED DAF = 20
(11) NMED Tables 6-2 and 6-4 TPH Soil Screening Levels "unknown oil" - see report Section 5 for use of screening levels

Bold represents value above Residential Screening Level
yellow highlight represents value above Non-Residential Screening Level
Bold with yellow highlight value exceeds Residential and Non-Residential Screening Levels
MPN/g = most probable number per gram
CFU/10g = colony forming unit/10 grams
v = reportable detection above the Practical quantitation limit (PQL)
u - result is not detected at method detection limit (MDL)
j - estimated result at concentration above MDL but less than PQL

Table 6 - Groundwater Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	Screening	Source	SL-1-GW		SL-2-GW		SL-3-GW		SL-4-GW		SL-5-GW		SL-6-GW		SL-7-GW		SL-8-GW		MKTF-24		MKTF-25		MKTF-29		MKTF-30		MKTF-31		MKTF-40		0APIS-1	
Lab ID	Levels		1911594-001		1911594-002		1911594-003		1911594-004		1911589-001		1911589-002		1911589-003		1911589-004		1910d02-006		1910d02-007		1910c12-009		1910d02-003		1910d00-001		1910d00-002		1910c12-006	
Sample Date			11/12/2019		11/12/2019		11/12/2019		11/12/2019		11/13/2019		11/13/2019		11/13/2019		11/13/2019		10/23/2019		10/23/2019		10/22/2019		10/23/2019		10/22/2019		10/22/2019		10/21/2019	
Metals (ug/l) TOTAL																																
Antimony	6	(3)	<0.78	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	0.17	J	<0.16	u	<0.39	u	<1.95	u	<1.95	u	<0.39	u	<0.39	u	<1.95	u	<1.95	u
Arsenic	10	(3)	5.8	v	1.7	v	1.6	v	2.3	v	10	Z	2.1	v	8.1	v	4	v	2.4	v	6.4	v	<1.56	u	1.9	J	<1.56	u	<1.56	u	**11**	Z
Barium	2000	(3)	470	v	70	v	88	v	94	v	120	v	54	v	110	v	78	v	370	v	940	v	92	v	160	v	210	v	110	v	1500	v
Beryllium	4	(3)	0.32	J	0.24	J	<0.22	u	0.36	J	0.31	J	<0.22	u	<0.22	u	<0.22	u	<0.28	u	1.3	J	0.45	J	0.35	J	0.42	J	<0.28	u	0.68	J
Cadmium	5	(3)	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u	<0.74	u
Chromium	50	(3)	<1.2	u	<1.2	u	1.8	J	2.9	J	<1.2	u	<1.2	u	<1.2	u	<1.2	u	<1.53	u	8.6	v	<1.53	u	3.3	J	2.5	J	<1.53	u	7.8	v
Chromium, Hexavalent	0.5	(4)	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	0.16	J	**NR**		**NR**		**NR**		**NR**		**NR**		**NR**		**NR**	
Cobalt	50	(3)	8.1	v	2.5	J	3.6	J	5.6	J	4.9	J	1.8	J	1.4	J	8.7	v	5.1	J	6.2	v	<3.09	u	<3.09	u	<3.09	u	<3.09	u	8.2	v
Cyanide	200	(3)	17.3	v	<10	u	<10	u	<10	u	<10	u	<10	u	<10	u	<10	u	**NR**		**NR**		**NR**		**NR**		**NR**		**NR**		71.9	v
Iron	1,000	(3)	**2,100**	Z	910	Z	**1,700**	Z	**2,700**	Z	**1,100**	Z	960	Z	990	Z	700	Z	900	Z	**10,000**	Z	660	Z	**4,900**	Z	**3,800**	Z	**2,300**	Z	**8,800**	Z
Lead	15	(3)	0.56	J	1.2	v	2.4	v	3.5	v	1.4	v	0.95	v	0.36	J	0.57	v	2.1	v	12	v	0.64	J	3.4	v	3.5	v	2.3	J	10	v
Manganese	200	(3)	**15,000**	Z	**890**	Z	**720**	Z	**670**	Z	**5,400**	Z	**1,300**	Z	**2,200**	Z	**1,000**	Z	**2,300**	Z	**5,800**	Z	**2,100**	Z	**500**	Z	170	Z	56	Z	**1,800**	Z
Mercury	2	(3)	<0.12	u	<0.12	u	<0.12	u	<0.12	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	0.12	J	0.16	J	0.04	J	0.22	v	<0.04	u	<0.04	u	<0.04	u
Nickel	372	(4)	33	v	11	v	11	v	11	v	30	v	21	v	29	v	17	v	34	v	35	v	9.8	J	25	v	10	J	11	v	190	Z
Selenium	50	(3)	<2.39	u	<0.48	u	0.56	J	0.75	J	0.52	J	0.73	J	<0.48	u	<0.48	u	<0.48	u	<2.39	u	<2.39	u	<2.39	u	<2.39	u	<2.39	u	<2.39	u
Silver	50	(3)	9.8	v	2.2	J	<1.42	u	<1.42	u	4.4	J	2.5	J	2.7	J	1.7	J	2.8	J	4.4	J	3.4	J	1.6	J	2.9	J	5.1	v	<1.42	u
Vanadium	63.1	(4)	5.5	J	7.8	J	11	J	13	J	11	J	8.3	J	4.6	J	9	J	**NR**		**NR**		**NR**		**NR**		**NR**		**NR**		**NR**	
Zinc	10000	(3)	<5.77	u	6	J	<5.77	u	8.1	J	<5.77	u	6.3	J	<5.77	u	<5.77	u	<5.77	u	21	v	6.9	J	12	v	11	v	9.8	J	37	v
Water Quality (ug/l)																																
Chloride	250,000	(3)	**2,800,000**	Z	110,000	v	110,000	v	130,000	v	**430,000**	Z	140,000	v	**470,000**	Z	220,000	v	**660,000**	v	**1,400,000**	v	**1,000,000**	v	**480,000**	v	**770,000**	v	**2,800,000**	v	**1,400,000**	v
Fluoride	1,600	(3)	<144.91	u	<144.91	u	<144.91	u	<144.91	u	390	J	560	v	330	J	190	J	150	J	<144.91	u	420	J	1,100	v	<144.91	u	<144.91	u	1,600	v
Sulfate	600,000	(3)	290,000	Z	270,000	Z	270,000	Z	350,000	Z	220,000	v	440,000	Z	59,000	v	410,000	Z	20,000	v	73,000	v	320,000	v	480,000	v	72,000	v	540,000	v	4,400	v
Nitrogen, Nitrate (As N) [7]	10,000	(3)	<121.55	u	<30.39	u	<30.39	u	<30.39	u	<30.39	u	<30.39	u	<30.39	u	590	v	<30.39	u	14	J	72	J	160	v	52	J	<30.39	u	<30.39	u
Nitrogen, Nitrite (As N) [7]	1,000	(3)	<27	u	<27	u	<27	u	<27	u	<27	u	<27	u	<27	u	<27	u	<27	u	<108	u	<108	u	<108	u	<108	u	<108	u	<27	u
Biochemical Oxygen Demand	-	-	NR		NR		NR		NR		NR		NR		NR		NR		13000	Z	6000	v	<2000	u	<2000	u	<2000	u	<2000	u	5700	v
Chemical Oxygen Demand	-	-	162000	v	36900	v	43600	v	50900	v	65000	v	49600	v	75500	v	40500	v	60800	v	70,900	v	56,500	v	23,500	v	26,300	v	117000	v	482000	v
Total Coliform	-	-	present		present		present		present		present		present		present		present		absent		absent		absent		absent		absent		absent		absent	
E.Coli	-	-	absent		absent		absent		absent		absent		absent		absent		absent		absent		absent		absent		absent		absent		absent		absent	
Metals (ug/l) DISSOLVED																																
Antimony (D)	6	(3)	<1.95	u	<0.39	u	<0.39	u	<0.39	u	<1.95	u	<0.39	u	<0.39	u	<0.39	u	<1.95	u	<1.95	u	3.2	J	<1.95	u	<0.39	u	<1.95	u	<1.95	u
Arsenic (D)	10	(3)	3.8	J	1.2	v	1.2	v	1.3	v	9.6	v	1.7	v	7.7	v	2.8	v	3.1	J	3.7	J	1.1	J	0.79	J	0.66	J	0.73	J	9	v
Barium (D)	2000	(3)	460	v	34	v	33	v	27	v	76	v	34	v	99	v	60	v	380	v	530	v	62	v	32	v	130	v	62	v	1300	v
Beryllium (D)	4	(3)	<0.28	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	0.96	J	0.36	J	0.73	J	0.82	J	1.1	J	1.3	J	0.86	J
Cadmium (D)	5	(3)	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u
Chromium (D)	50	(3)	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u	<1.53	u
Cobalt (D)	50	(3)	8.2	v	<3.09	u	3.5	J	4.7	J	3.4	J	<3.09	u	<3.09	u	12	v	4.6	J	<3.09	u	<3.09	u	<3.09	u	<3.09	u	<3.09	u	<3.09	u
Iron (D)	1000	(3)	880	Z	19	J	<8.75	u	<8.75	u	33	v	<8.75	u	260	v	<8.75	u	590	Z	280	v	<8.75	u	13	J	<8.75	u	32	v	**3200**	Z
Lead (D)	15	(3)	<0.00013	u	<0.00013	J	<0.00013	J	0.26	J	0.37	J	0.35	J	0.06	J	0.21	J	0.98	v	<0.27	u	<0.27	u	<0.05	u	<0.05	u	<0.27	u	0.45	J
Manganese (D)	200	(3)	**17,000**	Z	**790**	Z	**620**	Z	**540**	Z	**4,700**	Z	**1,200**	Z	**2,000**	Z	**490**	Z	**2,400**	Z	**5,400**	Z	**2,000**	Z	1	J	15	v	21	v	**1,500**	Z
Nickel (D)	372	(4)	31	v	4.9	J	4.7	J	5.6	J	21	v	6.8	J	24	v	11	v	34	v	25	v	12	v	16	v	4.4	J	12	v	170	Z
Selenium (D)	50	(3)	<0.86	u	0.21	J	0.32	J	0.31	J	0.2	J	0.28	J	0.47	J	0.43	J	<0.86	u	<0.86	u	<0.86	u	<0.86	u	<0.86	u	<0.86	u	1.6	J
Silver (D)	50	(3)	9.6	v	1.5	J	1.5	J	1.5	J	3.9	J	1.8	J	2.6	J	1.5	J	3	J	5	J	4.4	J	1.5	J	3.3	J	4.6	J	3.3	J
Vanadium (D)	63.1	(4)	2.6	J	5.4	J	5	J	6.3	J	8.6	J	6.7	J	3.4	J	7	J	**NR**		**NR**		**NR**		**NR**		**NR**		**NR**		**NR**	
Zinc	10000	(3)	16	v	21	v	53	v	14	v	11	v	22	v	16	v	24	v	25	v	18	v	24	v	15	v	14	v	16	v	34	v
Volatiles (ug/l)																																
1,1,1,2-Tetrachloroethane	5.74	(4)	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<4.12	u	<1.03	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u
1,1,1-Trichloroethane	200	(3)	1.6	v	<0.17	u	<0.17	u	<0.17	u	5.6	v	<0.17	u	4.5	v	1.7	v	<3.46	u	<0.86	u	<0.17	u	0.28	J	3.6	v	<0.17	u	<0.17	u
1,1,2,2-Tetrachloroethane	10	(3)	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<10.97	u	<2.74	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u	<0.55	u
1,1,2-Trichloroethane	5	(3)	1.1	v	<0.22	u	<0.22	u	<0.22	u	<0.22	u	<0.22	u	0.51	J	<0.22	u	<4.32	u	1.5	J	<0.22	u	0.35	J	2.3	v	<0.22	u	<0.22	u
1,1-Dichloroethane	25	(3)	**53**	v	1.7	v	1.2	v	<0.14	u	**120**	Z	<0.14	u	**78**	v	**27**	v	**33**	v	**110**	v	0.56	J	**47**	v	**36**	v	0.76	J	1.1	v
1,1-Dichloroethene	7	(3)	**25**	v	1.2	v	0.74	J	<0.21	u	**65**	v	<0.21	u	**38**	v	**11**	v	**11**	J	**59**	v	<0.21	u	4.4	v	**53**	v	<0.21	u	<0.21	u
1,1-Dichloropropene	-	-	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<3.25	u	<0.81	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u
1,2,3-Trichlorobenzene	7	(1)	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<5.98	u	<1.49	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u
1,2,4-Trichlorobenzene (V)	70	(3)	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<3.91	u	<0.98	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u
1,2,4-Trimethylbenzene	56	(1)	<0.21	u	<0.21	u	<0.21	u	<0.21	u	4.6	v	<0.21	u	4.8	v	<0.21	u	5.3	J	1.3	J	<0.21	u	<0.21	u	0.22	J	<0.21	u	9.4	v
1,2-Dibromoethane (EDB)	0.05	(3)	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<3.31	u	<0.83	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u

Table 6 - Groundwater Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	Screening	Source	SL-1-GW		SL-2-GW		SL-3-GW		SL-4-GW		SL-5-GW		SL-6-GW		SL-7-GW		SL-8-GW		MKTF-24		MKTF-25		MKTF-29		MKTF-30		MKTF-31		MKTF-40		0APIS-1	
Lab ID	Levels		1911594-001		1911594-002		1911594-003		1911594-004		1911589-001		1911589-002		1911589-003		1911589-004		1910d02-006		1910d02-007		1910c12-009		1910d02-003		1910d00-001		1910d00-002		1910c12-006	
Sample Date			11/12/2019		11/12/2019		11/12/2019		11/12/2019		11/13/2019		11/13/2019		11/13/2019		11/13/2019		10/23/2019		10/23/2019		10/22/2019		10/23/2019		10/22/2019		10/22/2019		10/21/2019	
1,2-Dichlorobenzene (V)	600	(3)	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<5.94	u	<1.49	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u
1,2-Dichloroethane (EDC)	5	(3)	**7.4**	v	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	**9.3**	J	**9.1**	v	<0.19	u	2.1	v	**21**	v	0.44	J	0.53	J
1,2-Dichloropropane	5	(3)	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<4.18	u	<1.04	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u
1,3,5-Trimethylbenzene	60	(1)	0.3	J	<0.19	u	<0.19	u	<0.19	u	0.83	J	<0.19	u	2.5	v	<0.19	u	<3.77	u	<0.94	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u
1,3-Dichlorobenzene (V)	-	-	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<4.97	u	<1.24	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u
1,3-Dichloropropane	370	(1)	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<4.01	u	<1	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u
1,4-Dichlorobenzene (V)	75	(2)	1.7	v	0.92	J	0.57	J	<0.29	u	<0.29	u	<0.29	u	<0.29	u	0.35	J	<5.9	u	<1.47	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u
1-Methylnaphthalene (V)	11.38	(4)	<0.31	u	<0.31	u	<0.31	u	<0.31	u	2.3	J	<0.31	u	2.8	J	0.58	J	11	J	<1.57	u	<0.31	u	<0.31	u	<0.31	u	<0.31	u	**49**	v
2,2-Dichloropropane	-	-	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<4.67	u	<1.17	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u
2-Butanone	5564	(4)	<2.09	u	<2.09	u	<2.09	u	<2.09	u	<2.09	u	<2.09	u	<2.09	u	<2.09	u	<41.79	u	<10.45	u	<2.09	u	<2.09	u	<2.09	u	<2.09	u	<2.09	u
2-Chlorotoluene	233	(4)	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<4.91	u	<1.23	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u	<0.25	u
2-Hexanone	38	(1)	<1.55	u	<1.55	u	<1.55	u	<1.55	u	<1.55	u	<1.55	u	<1.55	u	<1.55	u	<30.94	u	<7.74	u	<1.55	u	<1.55	u	<1.55	u	<1.55	u	<1.55	u
2-Methylnaphthalene (V)	35.11	(4)	<0.35	u	<0.35	u	<0.35	u	<0.35	u	0.36	J	<0.35	u	<0.35	u	<0.35	u	<6.91	u	<1.73	u	<0.35	u	<0.35	u	<0.35	u	<0.35	u	<0.35	u
4-Chlorotoluene	250	(1)	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<4.7	u	<1.17	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u
4-Isopropyltoluene	-	-	<0.22	u	<0.22	u	<0.22	u	<0.22	u	0.69	J	<0.22	u	1	v	<0.22	u	<4.35	u	<1.09	u	<0.22	u	<0.22	u	<0.22	u	<0.22	u	0.67	J
4-Methyl-2-pentanone	1243	(4)	<0.71	u	<0.71	u	<0.71	u	<0.71	u	2.3	J	<0.71	u	2.4	J	<0.71	u	<14.28	u	<3.57	u	<0.71	u	<0.71	u	<0.71	u	<0.71	u	<0.71	u
Acetone	14063	(4)	7.5	J	<1.2	u	2.6	J	<1.2	u	<1.2	u	<1.2	u	14	v	7.3	J	<23.99	u	<6	u	<1.2	u	<1.2	u	<1.2	u	<1.2	u	<1.2	u
Benzene	5	(3)	**200**	v	0.98	J	0.38	J	0.17	J	**1700**	Z	<0.17	u	**4000**	v	**290**	v	**5000**	v	**370**	v	<0.17	u	<0.17	u	0.6	J	<0.17	u	**170**	v
Bromobenzene	62	(1)	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<4.89	u	<1.22	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u
Bromodichloromethane	1.34	(4)	<0.13	u	<0.13	u	<0.13	u	<0.13	u	<0.13	u	<0.13	u	<0.13	u	<0.13	u	<2.68	u	<0.67	u	<0.13	u	<0.13	u	<0.13	u	<0.13	u	<0.13	u
Bromoform	32.85	(4)	<0.29	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u	<5.77	u	<1.44	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u	<0.29	u
Bromomethane	7.54	(4)	<0.27	u	<0.27	u	<0.27	u	<0.27	u	<0.27	u	<0.27	u	<0.27	u	<0.27	u	<5.46	u	<1.37	u	<0.27	u	<0.27	u	<0.27	u	<0.27	u	<0.27	u
Carbon disulfide	810	(4)	<0.45	u	<0.45	u	<0.45	u	<0.45	u	<0.45	u	<0.45	u	<0.45	u	<0.45	u	<9.05	u	<2.26	u	<0.45	u	<0.45	u	<0.45	u	<0.45	u	<0.45	u
Carbon Tetrachloride	5	(3)	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<2.81	u	<0.7	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u
Chlorobenzene	100	(2)	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<3.88	u	<0.97	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u
Chloroethane	20900	(4)	<0.18	u	<0.18	u	<0.18	u	<0.18	u	0.7	J	<0.18	u	3.3	v	<0.18	u	<3.56	u	<0.89	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u
Chloroform	100	(3)	<0.12	u	<0.12	u	<0.12	u	<0.12	u	<0.12	u	<0.12	u	<0.12	u	<0.12	u	<2.44	u	<0.61	u	<0.12	u	<0.12	u	0.48	J	0.19	J	<0.12	u
Chloromethane	20.3	(4)	<0.32	u	<0.32	u	<0.32	u	<0.32	u	<0.32	u	<0.32	u	<0.32	u	<0.32	u	<6.42	u	<1.6	u	<0.32	u	<0.32	u	<0.32	u	<0.32	u	<0.32	u
cis-1,2-DCE	70	(3)	3.3	v	0.42	J	0.31	J	<0.19	u	32	v	<0.19	u	22	v	5.6	v	<3.8	u	27	v	<0.19	u	4.3	v	1.7	v	<0.19	u	<0.19	u
cis-1,3-Dichloropropene	4.71	(4)	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<2.77	u	<0.69	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u	<0.14	u
Dibromochloromethane	1.68	(4)	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<4.78	u	<1.19	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u	<0.24	u
Dibromomethane	8.3	(1)	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<4.18	u	<1.05	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u
Dichlorodifluoromethane	197	(4)	<0.26	u	<0.26	u	<0.26	u	<0.26	u	<0.26	u	<0.26	u	<0.26	u	<0.26	u	<5.2	u	<1.3	u	<0.26	u	<0.26	u	<0.26	u	<0.26	u	<0.26	u
Ethylbenzene	700	(3)	0.96	J	<0.13	u	<0.13	u	<0.13	u	2.3	v	<0.13	u	16	v	1.3	v	310	v	0.81	J	<0.13	u	<0.13	u	<0.13	u	<0.13	u	21	v
Hexachlorobutadiene (V)	1.39	(4)	<0.31	u	<0.31	u	<0.31	u	<0.31	u	<0.31	u	<0.31	u	<0.31	u	<0.31	u	<6.2	u	<1.55	u	<0.31	u	<0.31	u	<0.31	u	<0.31	u	<0.31	u
Isopropylbenzene	447	(4)	3.5	v	<0.19	u	<0.19	u	<0.19	u	6.9	v	<0.19	u	7.2	v	1.7	v	32	v	7.7	v	<0.19	u	<0.19	u	0.93	J	<0.19	u	2	v
Methyl tert-butyl ether (MTBE)	100	(4)	76	v	44	v	37	v	18	v	**200**	Z	15	v	**190**	v	67	v	**110**	v	**880**	v	12	v	1.5	v	100	v	0.72	J	**250**	v
Methylene Chloride	5	(3)	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<3.09	u	<0.77	u	<0.15	u	<0.15	u	0.2	J	<0.15	u	<0.15	u
Naphthalene (V)	30	(3)	0.31	J	<0.28	u	<0.28	u	<0.28	u	7.7	v	<0.28	u	6.7	v	0.74	J	<5.5	u	<1.38	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	1.9	J
n-Butylbenzene	1000	(1)	0.49	J	<0.23	u	<0.23	u	<0.23	u	0.38	J	<0.23	u	0.97	J	0.37	J	11	J	<1.14	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u	<0.23	u
n-Propylbenzene	660	(1)	0.23	J	<0.21	u	<0.21	u	<0.21	u	0.71	J	<0.21	u	0.91	J	0.96	J	64	v	3.3	J	<0.21	u	<0.21	u	<0.21	u	<0.21	u	2.5	v
sec-Butylbenzene	2000	(1)	0.7	J	<0.25	u	0.42	J	0.81	J	1.4	v	0.53	J	3.6	v	0.38	J	7.4	J	<1.24	u	<0.25	u	<0.25	u	0.4	J	<0.25	u	0.42	J
Styrene	100	(3)	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<3.83	u	<0.96	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u
tert-Butylbenzene	690	(1)	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<4.14	u	<1.03	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u	<0.21	u
Tetrachloroethene (PCE)	5	(3)	<0.15	u	<0.15	u	<0.15	u	<0.15	u	0.98	J	<0.15	u	0.75	J	<0.15	u	<2.99	u	<0.75	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u
Toluene	1000	(3)	<0.35	u	<0.35	u	<0.35	u	<0.35	u	5.6	v	<0.35	u	18	v	0.92	J	24	v	<1.75	u	<0.35	u	<0.35	u	<0.35	u	<0.35	u	1.5	v
trans-1,2-DCE	100	(3)	<0.18	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u	<3.59	u	<0.9	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u	<0.18	u
trans-1,3-Dichloropropene	4.71	(4)	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<3.33	u	<0.83	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u	<0.17	u
Trichloroethene (TCE)	5	(3)	3.8	v	<0.17	u	<0.17	u	<0.17	u	**8.7**	v	<0.17	u	4.7	v	2.3	v	<3.33	u	**11**	v	<0.17	u	3	v	4.4	v	<0.17	u	<0.17	u
Trichlorofluoromethane	1140	(4)	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<3.78	u	<0.95	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u	<0.19	u
Vinyl chloride	2	(3)	<0.18	u	<0.18	u	<0.18	u	<0.18	u	**6.4**	v	<0.18	u	**14**	v	0.59	J	**37**	v	**3.3**	J	<0.18	u	<0.18	u	0.46	J	<0.18	u	<0.18	u
Xylenes, Total	620	(3)	0.65	J	<0.45	u	<0.45	u	<0.45	u	8.1	v	<0.45	u	33	v	0.97	J	<9.09	u	<2.27	u	<0.45	u	<0.45	u	<0.45	u	<0.45	u	7.4	v
Semivolatiles (ug/l)																																
1,2,4-Trichlorobenzene	70	(2)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
1,2-Dichlorobenzene	600	(3)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
1,3-Dichlorobenzene	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
1,4-Dichlorobenzene	75	(3)	<0.5	u	0.68	v	<0.5	u	<0.5	u	1.1	v	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u

Table 6 - Groundwater Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	Screening	Source	SL-1-GW		SL-2-GW		SL-3-GW		SL-4-GW		SL-5-GW		SL-6-GW		SL-7-GW		SL-8-GW		MKTF-24		MKTF-25		MKTF-29		MKTF-30		MKTF-31		MKTF-40		0APIS-1	
Lab ID	Levels		1911594-001		1911594-002		1911594-003		1911594-004		1911589-001		1911589-002		1911589-003		1911589-004		1910d02-006		1910d02-007		1910c12-009		1910d02-003		1910d00-001		1910d00-002		1910c12-006	
Sample Date			11/12/2019		11/12/2019		11/12/2019		11/12/2019		11/13/2019		11/13/2019		11/13/2019		11/13/2019		10/23/2019		10/23/2019		10/22/2019		10/23/2019		10/22/2019		10/22/2019		10/21/2019	
1-Methylnaphthalene	11.38	(4)	0.55	v	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	5.1	v	<1.23	u	<1.23	u	<1.23	u	<1.23	u	<1.23	u	32	v
2,4,5-Trichlorophenol	1166	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2,4,6-Trichlorophenol	11.9	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2,4-Dichlorophenol	45.3	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2,4-Dimethylphenol	354	(4)	0.55	v	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2,4-Dinitrophenol	38.7	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2,4-Dinitrotoluene	2.37	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2,6-Dinitrotoluene	0.485	(4)	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u
2-Chloronaphthalene	733	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2-Chlorophenol	91	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2-Methylnaphthalene	35.11	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<1.23	u	<1.23	u	<1.23	u	<1.23	u	<1.23	u	<1.23	u	<1.23	u
2-Methylphenol	930	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2-Nitroaniline	190	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
2-Nitrophenol	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
3,3´-Dichlorobenzidine	1.25	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
3+4-Methylphenol	930	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
3-Nitroaniline	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
4,6-Dinitro-2-methylphenol	1.52	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
4-Bromophenyl phenyl ether	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
4-Chloro-3-methylphenol	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
4-Chlorophenyl phenyl ether	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
4-Nitroaniline	38	(5)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
4-Nitrophenol	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Acenaphthene	535	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<1.14	u	<1.14	u	<1.14	u	<1.14	u	<1.14	u	<1.14	u	<1.14	u
Acenaphthylene	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<1.26	u	<1.26	u	<1.26	u	<1.26	u	<1.26	u	<1.26	u	<1.26	u
Aniline	130	(5)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Anthracene	1721	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u
Benz(a)anthracene	0.12	(4)	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u
Benzo(a)pyrene	0.2	(3)	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.02	u	<0.02	u	<0.02	u	<0.02	u	<0.02	u	<0.02	u	<0.02	u
Benzo(b)fluoranthene	0.343	(4)	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.1	u	<0.07	u	<0.07	u	<0.07	u	<0.07	u	<0.07	u	<0.07	u	<0.07	u
Benzo(g,h,i)perylene	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u
Benzo(k)fluoranthene	3.43	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u
Benzoic acid	75000	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Benzyl alcohol	2000	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Bis(2-chloroethoxy)methane	59	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Bis(2-chloroisopropyl)ether	9.81	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Bis(2-ethylhexyl)phthalate	6	(2)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	0.64	v	<0.5	u	<0.5	u	1.4	v	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Butyl benzyl phthalate	160	(5)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Carbazole	-	-	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Chrysene	34.3	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u	<0.16	u
Dibenz(a,h)anthracene	0.0343	(4)	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.03	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u	<0.04	u
Dibenzofuran	7.9	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Diethyl phthalate	14800	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Dimethyl phthalate	611.56	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Di-n-butyl phthalate	885	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Di-n-octyl phthalate	200	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Fluoranthene	802	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u	<0.3	u
Fluorene	288	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.34	u	<0.34	u	<0.34	u	<0.34	u	<0.34	u	<0.34	u	0.91	v
Hexachlorobenzene	1	(2)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Hexachlorobutadiene	1.39	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Hexachlorocyclopentadiene	50	(2)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Hexachloroethane	3.28	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Indeno(1,2,3-cd)pyrene	0.343	(4)	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	<0.2	u	0.11	J	<0.07	u	<0.07	u	<0.07	u	<0.07	u	<0.07	u	<0.07	u
Isophorone	780.63	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Naphthalene	30	(3)	0.68	v	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	2.5	J	<1.16	u	<1.16	u	<1.16	u	<1.16	u	<1.16	u	4.1	v
Nitrobenzene	1.4	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
N-Nitrosodiphenylamine	121.9	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u

Table 6 - Groundwater Analytical Results Summary
Marathon Petroleum Company - Gallup Refinery
Gallup, New Mexico

	Screening	Source	SL-1-GW		SL-2-GW		SL-3-GW		SL-4-GW		SL-5-GW		SL-6-GW		SL-7-GW		SL-8-GW		MKTF-24		MKTF-25		MKTF-29		MKTF-30		MKTF-31		MKTF-40		0APIS-1	
Lab ID	Levels		1911594-001		1911594-002		1911594-003		1911594-004		1911589-001		1911589-002		1911589-003		1911589-004		1910d02-006		1910d02-007		1910c12-009		1910d02-003		1910d00-001		1910d00-002		1910c12-006	
Sample Date			11/12/2019		11/12/2019		11/12/2019		11/12/2019		11/13/2019		11/13/2019		11/13/2019		11/13/2019		10/23/2019		10/23/2019		10/22/2019		10/23/2019		10/22/2019		10/22/2019		10/21/2019	
Phenanthrene	170	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	0.19	J	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u	<0.15	u
Pentachlorophenol	1	(3)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Phenol	5760	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	0.98	v	<0.5	u	<0.5	u	0.82	v	21	v	21	v	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
Pyrene	117	(4)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u	<0.28	u
Pyridine	20	(1)	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u	<0.5	u
TPH (ug/l)																																
Gasoline Range Organics (GRO)	10.1	(6)	**1200**	v	**39**	J	**34**	J	**25**	v	**9000**	v	<21.1	v	**11000**	v	**950**	v	**17000**	v	**3000**	v	<21.1	u	**31**	J	**96**	v	<21.1	u	**850**	v
Diesel Range Organics (DRO)	85.8	(6)	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	<132	u	**1400**	v
Motor Oil Range Organics (MRO	85.8	(6)	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u	<2500	u

- No screening level or analytical result available

450 - bolded value exceeds screening level

(1) EPA - Regional Screening Levels (November 2019) -Tap Water

(2) EPA - Regional Screening Levels (November 2019) - MCL

(3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)

(4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (March 2019)

(5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds

(6) NMED Soil Screening Guidance - "gasoline" for GRO and "unknown oil" for DRO (March 2019)

(7) laboratory results for nitrate and nitrite followed by results using field test kit

v = reportable detection above the Practical quantitation limit (PQL)

u - result is not detected at method detection limit (MDL)

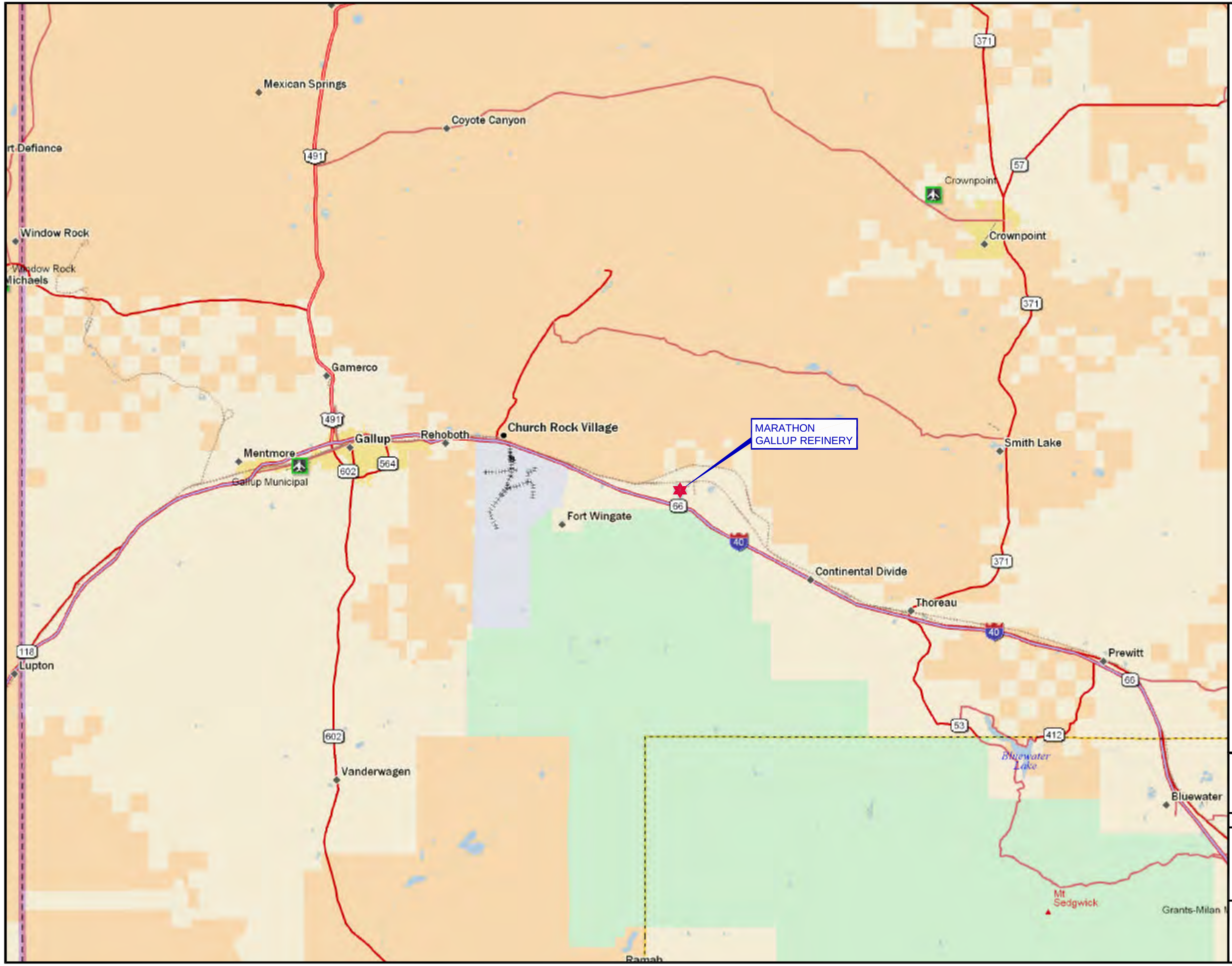
j - estimated result at concentration above MDL but less than PQL

z - concentration exceeds MCL

NR - not reported

Figures

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Location of Soil Borings and Wells
Figure 4	Topographic Map
Figure 5	Geologic Map of New Mexico
Figure 6	Cross Section A-A'
Figure 7	Cross Section B-B'
Figure 8	November 2019 Potentiometric Surface Map
Figure 9	Manganese Soils Concentration Map
Figure 10	Diesel Range Organics Soils Concentration Map
Figure 11	Iron and Manganese Groundwater Concentration Map
Figure 12	Chloride and Sulfate Groundwater Concentration Map
Figure 13	1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, and 1-Methylnaphthalene Groundwater Concentration Map
Figure 14	Benzene, MTBE, Trichloroethene, and Vinyl Chloride Groundwater Concentration Map
Figure 15	Gasoline Range and Diesel Range Organics Groundwater Concentration Map



Map Source: DeLorme Street Atlas USA 2007 Plus.

0 5
SCALE IN MILES

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 12/09/18 | FILE: Mathon-dB206

FIGURE 1
SITE LOCATION MAP
GALLUP REFINERY

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

0 80
SCALE IN FEET

LEGEND

ESTIMATED LOCATION OF THE SANITARY PIPELINE



GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 05/31/19 | FILE: Mathon-dB217

FIGURE 2
SANITARY LAGOON
LOCATION MAP

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

0 60
SCALE IN FEET

LEGEND

MKTF-24 PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER

SL-1 SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

A — A' LINE OF CROSS-SECTION

NEW MEXICO

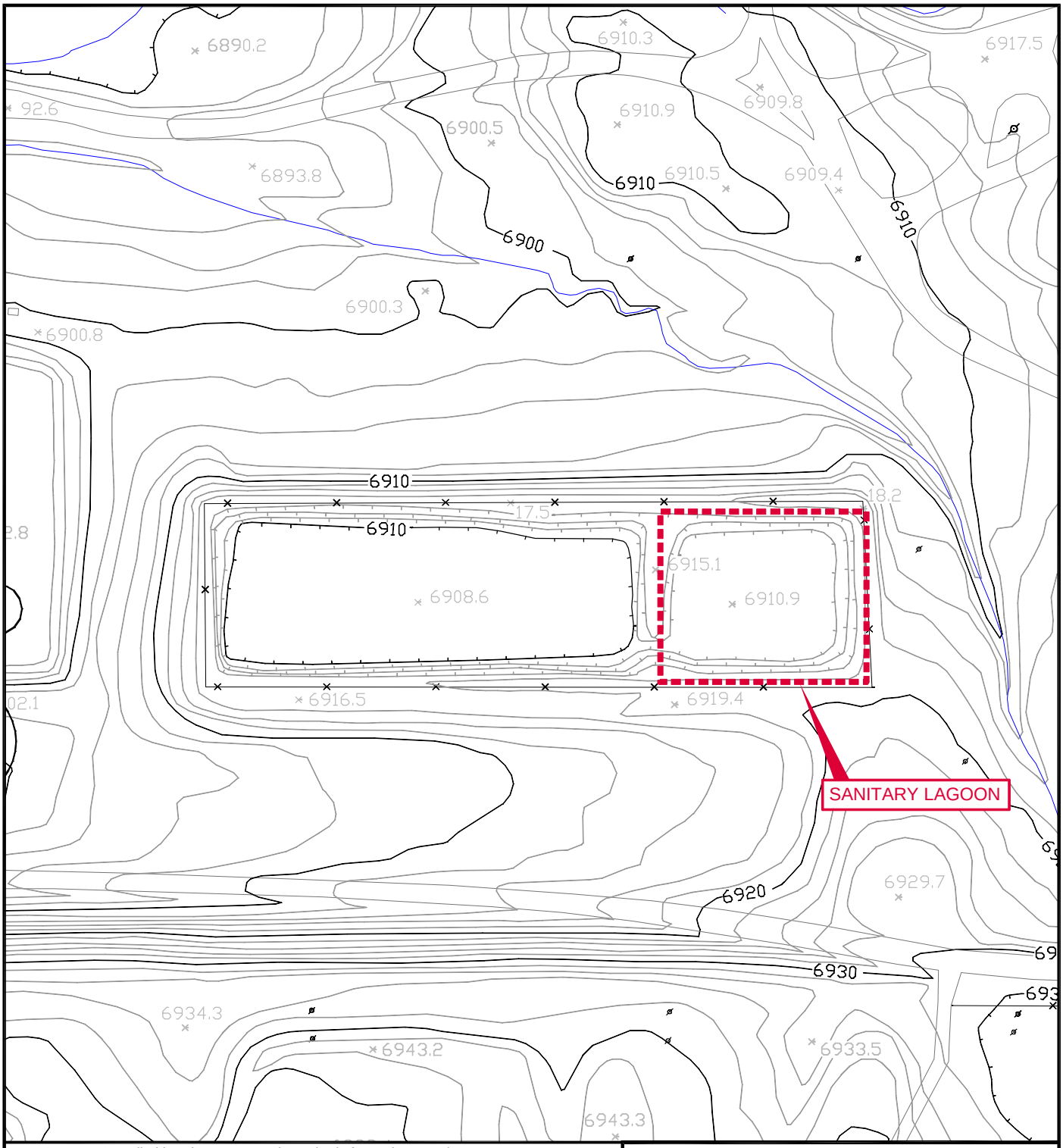
GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/09/20 | FILE: Mathon–dB238

FIGURE 3
LOCATION OF
SOIL BORINGS AND WELLS

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Map Source: Compiled by Photogrammetric Methods from Photography Acquired on March 1, 1998.

N

0 100

SCALE IN FEET

NEW MEXICO

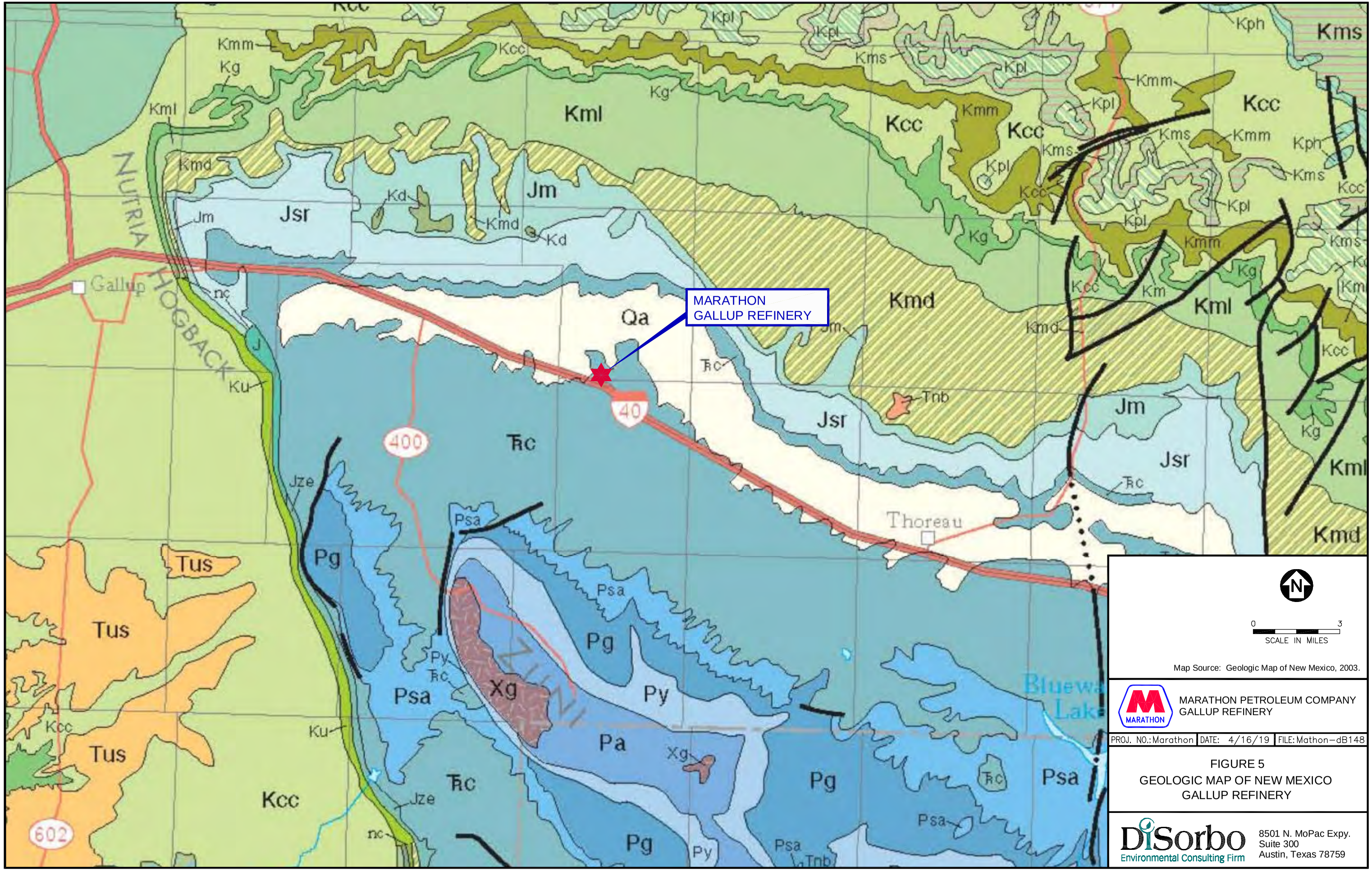
SITE LOCATION

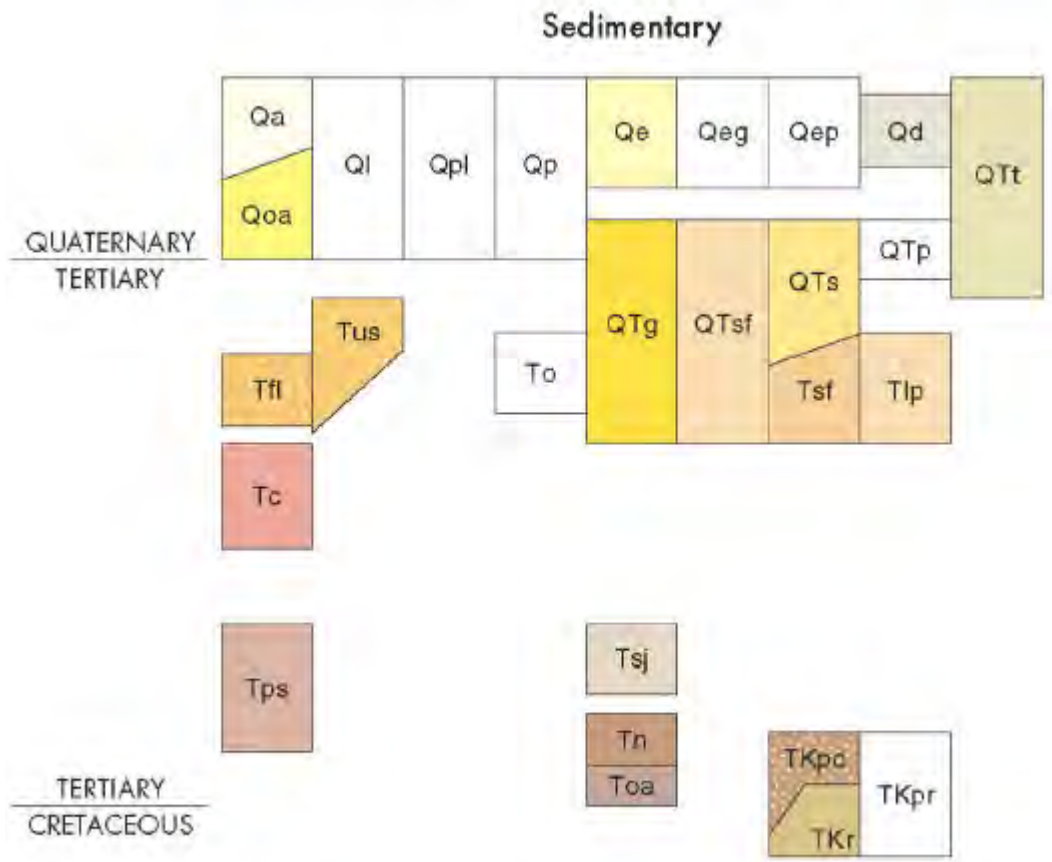
MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon	DATE: 02/09/20	FILE: Mathon-dA186

FIGURE 4
TOPOGRAPHIC MAP

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759


MARATHON
GALLUP REFINERY
NUTRIA
HOGBACK
Gallup
Thoreau
ZUNI
Bluewa
Lake
Kml
Kmm
Kcc
Kpl
Kms
Kph
Kg
Kmd
Jm
Jsr
Kd
Qa
Trc
Tnb
Jze
Psa
Pg
Py
Xg
Pa
Tus
Ku
nc
J
40
400
602
0
3
SCALE IN MILES
Map Source: Geologic Map of New Mexico, 2003.
MARATHON PETROLEUM COMPANY
GALLUP REFINERY
PROJ. NO.: Marathon
DATE: 4/16/19
FILE: Mathon-dB148
FIGURE 5
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY
DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



DESCRIPTION OF MAP UNITS

QUATERNARY

Qa Alluvium (Holocene to upper Pleistocene)

Ql Landslide deposits and colluvium (Holocene to Pleistocene)—Landslide deposits on western flanks of Socorro Mountains not shown for clarity

Qpl Lacustrine and playa deposits (Holocene)—Includes associated alluvial and eolian deposits of major lake basins

Qp Piedmont alluvial deposits (Holocene to lower Pleistocene)—Includes deposits of higher gradient tributaries bordering major stream valleys, alluvial veneers of the piedmont slope, and alluvial fans. May locally include uppermost Pliocene deposits

Qe Eolian deposits (Holocene to middle Pleistocene)

Qeg Gypsiferous eolian deposits (Holocene to middle Pleistocene)

Qep Eolian and piedmont deposits (Holocene to middle Pleistocene)—Interlayed eolian sands and piedmont-slope deposits along the eastern flank of the Pecos River valley, primarily between Roswell and Carlsbad. Typically capped by thin eolian deposits

Qd Glacial deposits; till and outwash (upper to middle Pleistocene)

Qoa Older alluvial deposits of upland plains and piedmont areas, and calcic soils and eolian cover sediments of High Plains region (middle to lower Pleistocene)—Includes scattered lacustrine, playa, and alluvial deposits of the Tahoka, Double Tanks, Tule, Blackwater Draw, and Gatuña Formations, the latter of which may be Pliocene at base; outcrops, however, are basically of Quaternary deposits

Qb Basaltic to andesitic lava flows (Holocene to middle Pleistocene)—Flows south of Grants and west of Carrizozo are Holocene. Includes minor vent deposits

Qv Basaltic tephra and lavas near vents (upper to middle Pleistocene)—Tuff rings, maars, cinder cones, and minor proximal lavas. Includes maars at Kilbourne Hole and Zuni Salt Lake

Qbo Basaltic to andesitic lava flows (middle to lower Pleistocene)—Includes vent deposits

Qvr Ring-fracture rhyolite lava domes of the Valles caldera (uppermost to lower Pleistocene)—Upper members of the Valles Rhyolite in Jemez Mountains. Includes 60-ka Banco Bonito and El Cajete Members on south margin of caldera

Qr Older rhyolite lavas and early volcaniclastic sedimentary fill deposits of the Valles caldera (lower Pleistocene)—Units are associated with resurgent doming or predate doming of the caldera core. Includes minor middle Pleistocene tuffs of the upper Valles Rhyolite on north side of caldera

Qbt Bandelier Tuff (lower Pleistocene)—Includes large blocks of older andesite in caldera-collapse breccia facies locally exposed on resurgent dome of the Valles caldera

QUATERNARY and TERTIARY

QTt Travertine (Holocene to Pliocene)—Includes some pedogenic carbonate south of Sierra Ladrones

QTp Older piedmont alluvial deposits and shallow basin fill (middle Pleistocene to uppermost Pliocene)—Includes Quemado Formation and in northeast, high-level pediment gravels

QTs Upper Santa Fe Group (middle Pleistocene to uppermost Miocene)—Includes Camp Rice, Fort Hancock, Palomas, Sierra Ladrones, Arroyo Ojito, Ancha, Puye, and Alamosa Formations

QTsf Santa Fe Group, undivided (middle Pleistocene to uppermost Oligocene)—Basin fill of the Rio Grande rift. Locally represents upper Miocene formations of the middle Santa Fe Group in the northern Albuquerque Basin

QTg Gila Group, Formation, or Conglomerate (middle Pleistocene to uppermost Oligocene?)—Includes Mimbres Formation and several informal units in southwestern basins

QTb Basaltic to andesitic lava flows (upper Pleistocene to lower Pliocene)—Includes minor vent deposits

Map Source: Geologic Map of New Mexico, 2003.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB148

FIGURE 5
LEGEND SHEET 1 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

TERTIARY

Tus Upper Tertiary sedimentary units (Pliocene to upper Oligocene)—Includes Bidahochi Formation (Pliocene to upper Miocene), Picuris Formation, (Miocene to Oligocene), Las Feveras Formation (Pliocene), lower Gila Group units in the southwest, and unnamed Pliocene unit in northwestern Socorro County

To Ogallala Formation (lower Pliocene to middle Miocene)—Alluvial and eolian deposits, and petrocalcic soils of the southern High Plains. Locally includes Qoa

Tfl Fence Lake Formation (Miocene)—Conglomerate and conglomeratic sandstone, coarse fluvial volcaniclastic sediments, minor eolian facies, and pedogenic carbonates of the southern Colorado Plateau region

Tsf Lower Santa Fe Group (upper Miocene to uppermost Oligocene)—Includes Hayner Ranch, Rincon Valley, Popotosa, Cochiti, Tesuque, Chamita, Abiquiu, Zia, and other formations

Tlp Los Pinos Formation of lower Santa Fe Group (Miocene and upper Oligocene)—Includes Carson Conglomerate (Dane and Bachman, 1965) in Tusas Mountains-San Luis Basin area

Tc Chuska Sandstone (middle to upper Oligocene)—Restricted to Chuska Mountains

Tpb Basaltic to andesitic lava flows (Pliocene)—Includes minor vent deposits and small shield volcanoes. Flows are commonly interbedded in the Santa Fe and Gila Groups

Tmb Basaltic to andesitic lava flows (Miocene)—Includes minor vent deposits. Flows are commonly interbedded in the Santa Fe and Gila Groups

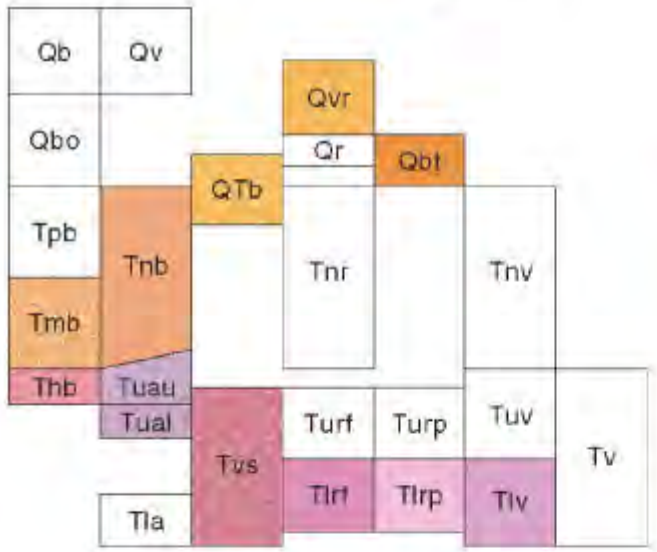
Tnb Basaltic to andesitic lava flows (Neogene)—Includes minor vent deposits. Flows are commonly interbedded in the Santa Fe and Gila Groups

Tnr Silicic to intermediate volcanic rocks (Neogene, mostly Miocene)—Rhyolite and dacite flows with associated minor tuffs. Commonly interbedded with Santa Fe or Gila Group sedimentary units. Dacitic lavas in northern Jemez Mountains are Pliocene

Tnv Intermediate to silicic volcanic rocks (Neogene)—Mostly andesitic to dacitic stratovolcanoes. Includes rhyolite lavas and tuffs in the Jemez Mountains. Volcanoes in Jemez Mountains and eastern Colfax County are upper Miocene. Mount Taylor and composite volcanoes in the Taos Plateau volcanic field are Pliocene

Thb Hinsdale Basalt (Miocene and upper Oligocene)—Northern Taos and eastern Rio Arriba Counties; basalt flows interbedded with Los Pinos Formation

Igneous





QUATERNARY
TERTIARY





TERTIARY
CRETACEOUS

Tuau Upper middle Tertiary basaltic andesites and andesites of the Mogollon Group (lower Miocene and uppermost Oligocene, 22–26 Ma)—Includes Bearwallow Mountain Andesite and basaltic andesite of Mangas Mountain; also near vent basaltic lavas and shallow intrusions in the Chuska Mountains

Tual Lower-upper middle Tertiary basaltic andesites and andesites of the Mogollon Group (upper Oligocene, 26–29 Ma)—Includes La Jara Peak Basaltic Andesite, Uvas Basaltic Andesite, basaltic andesites of Poverty Creek and Twin Peaks, Squirrel Springs Canyon Andesite, Razorback Basalt, Bear Springs Basalt, flows of Gila Flat, Salt Creek Formation, Middle Mountain Formation, and the Alum Mountain Group. Pre-Amalia Tuff lavas in the Questa caldera are dominantly silicic andesites and dacites; elsewhere silicic lavas are a minor component of Tual

Tvs Middle Tertiary volcaniclastic sedimentary units (Oligocene to upper Eocene)—Mostly syneruptive volcaniclastic sedimentary aprons. Lower units dominantly derived from volcanic highlands of andesitic to dacitic composition. Locally includes minor lavas and tuffs. Younger units (above and intertongued with Mogollon Group tuffs, Turp) include upper Bell Top Formation, South Crosby Peak Formation, and upper Spears Group units near Quemado. Older units (below and intertongued with Datil Group tuffs, Tlrp) include Palm Park, lower Bell Top, Espinaso and Pueblo Creek Formations and lower Spears Group formations such as Rincon Windmill, Chavez Canyon, and Dog Springs

Map Source: Geologic Map of New Mexico, 2003.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon–dB148

FIGURE 5
LEGEND SHEET 2 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

Turf — Upper middle Tertiary rhyolitic lavas and local tuffs (upper Oligocene, 24–29 Ma)—Includes Taylor Creek Rhyolite, Fanney Rhyolite, rhyolite of Rocky Canyon, rhyolite of Hardy Ridge, and upper rhyolite members of the Luis Lopez and Sawmill Canyon formations

Trf — Lower middle Tertiary rhyolitic lavas and local tuffs (lower Oligocene to upper Eocene, 36–31 Ma)—Includes Mimbres Peak Formation, rhyolite of Cedar Hills, and other units in the Bootheel region

Turp — Upper middle Tertiary rhyolitic pyroclastic rocks of the Mogollon Group, ash-flow tuffs (upper Oligocene, 24–30 Ma)—Regional ash-flow tuffs include the La Jencia, Vicks Peak, Lemitar, South Canyon, Bloodgood Canyon, Shelly Peak, Davis Canyon, Park, Rhyolite Canyon, Apache Spring, and Amalia Tuffs; the tuffs of Horseshoe Canyon, Diamond Creek, Garcia Camp, Caronita Canyon, Turkey Springs, and Little Mineral Creek; and the Jordan Canyon Formation. Includes some locally erupted lavas and tuffs within thick intracaldera units; includes minor volcaniclastic sedimentary units between thin outflow sheets

Tirp — Lower middle Tertiary rhyolitic to dacitic pyroclastic rocks of the Datil Group, ash-flow tuffs (lower Oligocene to upper Eocene, 31–36 Ma)—Regional ash-flow tuffs include Hells Mesa, Kneeling Nun, Caballo Blanco, Datil Well, Lebya Well, Rock House Canyon, Blue Canyon, Sugarlump, Oak Creek, Bluff Creek, Gillespie, Box Canyon, Cooney, and Chiquito Peak Tuffs; the tuffs of Steins Mountain, Black Bill Canyon, Woodhaul Canyon, and Farr Ranch; tuffs of the Organ cauldron; and lower tuffs in the Bell Top Formation. Includes some locally erupted lavas and tuffs within thick intracaldera units; includes minor volcaniclastic sedimentary units and lavas between thin outflow sheets

Tla — Lower middle Tertiary andesitic to dacitic lavas and pyroclastic flow breccias (upper to middle Eocene, 33–43 Ma)—Includes Rubio Peak Formation, Orejon Andesite, andesite of Dry Leggett Canyon, andesite of Telephone Canyon, and other units in southwestern, central, and northern New Mexico. Locally includes minor mafic lavas. Ancient landslide blocks of Madera Limestone, as much as one mile long, occur within Rubio Peak lavas in the central Black Range, west of Winston

Tuv — Upper middle Tertiary volcanic rocks (lower Miocene to upper Oligocene, younger than 30 Ma)—Mostly a combination of basaltic andesite lavas and rhyolitic ash-flow tuffs of the Mogollon Group (Tuau + Tual + Turp). Includes locally erupted lavas and tuffs in some calderas

Tlv — Lower middle Tertiary volcanic rocks (lower Oligocene to upper Eocene, older than 31 Ma)—Mostly intermediate lavas of the lower Datil Group and intermediate volcaniclastic sediments of the lower Spears Group (Tla + Tvs). Locally includes ash-flow tuffs of the upper Datil Group (Tirp). Includes intermediate volcaniclastic sedimentary rocks of the Conejos Formation in northern New Mexico

Tv — Middle Tertiary volcanic rocks, undifferentiated (lower Miocene to upper Eocene)—Includes the predominantly andesitic to dacitic stratovolcano complex at Sierra Blanca (Oligocene to upper Eocene) and many smaller outliers

Ti — Tertiary intrusive rocks of intermediate to silicic composition (Pliocene to Eocene)—Includes monzonitic to granitic plutons, stocks, laccoliths, and porphyritic dikes in deeply eroded magmatic centers; and andesitic, dacitic, or rhyolitic plugs and dikes near cauldrons or stratovolcanoes. In the Latir field, fine-grained rhyolitic dikes commonly cut coarse-grained granitic plutons. Includes alkaline laccoliths, plugs, and dikes in Colfax County. North-trending dikes near Capitan include some mafic diabase dikes

Tm — Tertiary mafic intrusive rocks (Pliocene to upper Eocene)—Includes many long basaltic andesite dikes of Oligocene age near Pie Town, Acoma, Riley, Chupadera, Truth or Consequences, Roswel, Raton, and Dulce; and several elongate or shoestring-like sills of basalt or basaltic andesite. Also includes basaltic necks of Pliocene age that dot the landscape northeast of Mount Taylor. Where dikes extend into Quaternary alluvium the contact is an unconformity

Tps — **Paleogene sedimentary units**—Includes Baca, Galisteo, El Rito, Blanco Basin, Hart Mine, Love Ranch, Lobo, Sanders Canyon, Skunk Ranch, Timberlake, and Cub Mountain Formations

Tsj — San Jose Formation (Eocene)—San Juan Basin

Tn — Nacimiento Formation (Paleocene)—San Juan Basin

Toa — Ojo Alamo Formation (Paleocene)—San Juan Basin

TERTIARY and CRETACEOUS

TKpc — Poison Canyon Formation (Paleocene and Upper Cretaceous)—Proximal conglomerates and sandstones in western Raton Basin; generally lacking coal beds. Cretaceous beds mostly restricted to subsurface

TKr — Raton Formation (Paleocene and Upper Cretaceous)—Distal sandstones, mudstones, and coal beds in eastern Raton Basin. Middle barren zone laterally equivalent to Poison Canyon Formation. K/T boundary discontinuously exposed about 100 m above basal conglomerate in area southwest of Raton

TKpr — Poison Canyon and Raton Formations (Paleocene and Upper Cretaceous)—Broadly intertonguing conglomeratic sandstones, sandstones and mudstones; minor coal beds

TKa — Animas Formation (Paleocene and Upper Cretaceous)—Volcaniclastic sedimentary rocks of intermediate composition in northern San Juan Basin

TKav — Tertiary-Cretaceous andesitic to dacitic lavas and pyroclastic breccias (Paleocene and Upper Cretaceous)—Includes many remnants of eruptive centers in Grant and Hidalgo Counties and Upper Cretaceous andesitic lavas in Sierra County

TKi — Tertiary-Cretaceous intrusive rocks (Paleocene and Upper Cretaceous)—Includes granodiorite to quartz monzonite stocks and plutons at Hanover, Fierro, Tyrone, Lordsburg, and the 73-Ma quartz monzonite porphyry stock at Copper Flats in Sierra County. Also includes many northeast-trending monzonite porphyry dikes in the Silver City region

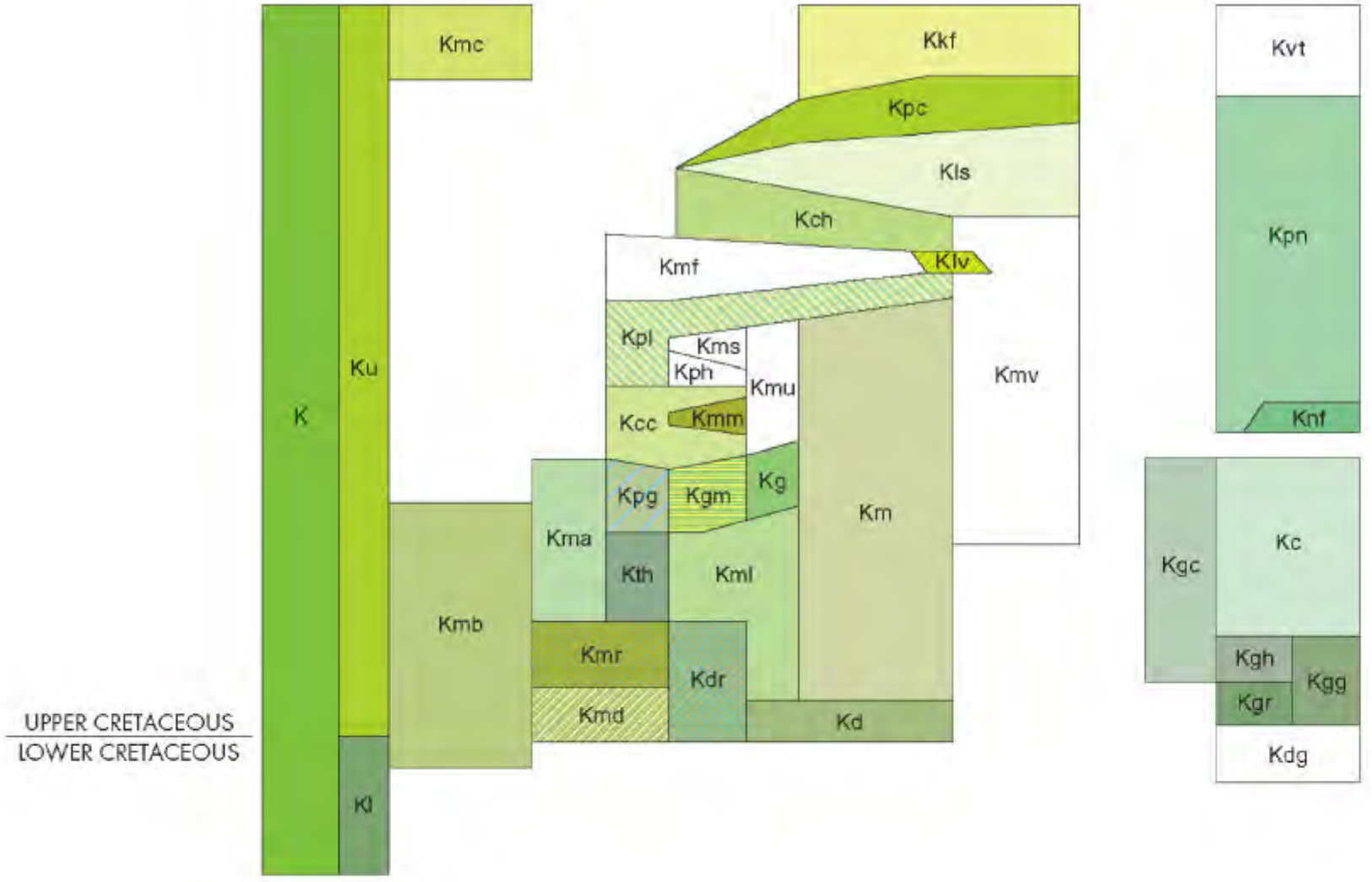
Map Source: Geologic Map of New Mexico, 2003.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon–dB148

FIGURE 5
LEGEND SHEET 3 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



CRETACEOUS

K — **Cretaceous rocks, undivided**

Ku — **Upper Cretaceous rocks of southwestern New Mexico, undivided** (Maastrichtian to Cenomanian for most part, although Beartooth and Sarten Formations are in part Albian)—Includes Virden Formation in northern Hidalgo County, Ringbone Formation in Hidalgo, Luna, and Grant Counties, Beartooth and Sarten Formations in Luna and Grant Counties, Mancos Shale in Silver City area

Kmc — **McRae Formation** (Maastrichtian)—Engle Basin-Cutter sag area

Kvt — **Vermejo Formation and Trinidad Sandstone** (Maastrichtian to Campanian)

Kkf — **Kirtland and Fruitland Formations** (Campanian)—Coal-bearing, primarily in the Fruitland

Kpc — **Pictured Cliffs Sandstone** (Campanian)—Prominent, cliff-forming marine sandstone

Kpg — **Pescado Tongue of the Mancos Shale and Gallup Sandstone** (Turonian)—In Zuni Basin only; Pescado is chronostratigraphic equivalent of Juana Lopez Member of Mancos Shale

Kth — **Tres Hermanos Formation** (Turonian)—Formerly designated as lower Gallup Sandstone in the Zuni Basin

Kma — **Moreno Hill Formation and Atarque Sandstone** (Turonian)—In Salt Lake coal field and extreme southern Zuni Basin

Km — **Mancos Shale** (Cenomanian to Campanian)—Divided into upper and lower parts by Gallup Sandstone

Kmu — **Mancos Shale, upper part** (Campanian to Coniacian)

Kml — **Mancos Shale, lower part** (Turonian and Cenomanian)

Kdr — **Dakota Sandstone** (Cenomanian) **and Rio Salado Tongue of the Mancos Shale**—In northwest Socorro County locally includes overlying Tres Hermanos Formation

Map Source: Geologic Map of New Mexico, 2003.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB148

FIGURE 5
LEGEND SHEET 4 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

Kls **Lewis Shale** (Campanian)—Marine shale and mudstone

Kpn **Pierre Shale and Niobrara Formation** (Campanian to Coniacian)

Knf **Fort Hays Limestone Member of Niobrara Formation** (Coniacian to Turonian)

Kmv **Mesaverde Group** (Campanian to Turonian)—Includes Cliff House Sandstone, Menefee Formation and Point Lookout Sandstone.

Kch **Cliff House Sandstone** (Campanian)—Transgressive marine sandstone

Klv **La Ventana Tongue of the Cliff House Sandstone** (Turonian)

Kmf **Menefee Formation** (Campanian to Santonian)—Mudstone, shale, and sandstone; coal-bearing

Kpl **Point Lookout Sandstone** (Campanian to Santonian)—Regressive marine sandstone in McKinley and Sandoval Counties; the lower, Hosta Tongue, of Point Lookout is transgressive, and is separated from main body by the Satan Tongue of Mancos Shale

Kms **Satan Tongue of Mancos Shale** (Santonian)

Kph **Hosta Tongue of Point Lookout Sandstone** (Santonian)—Transgressive marine sandstone

Kmm **Mulatto Tongue of Mancos Shale** (Santonian to Coniacian)

Kcc **Crevasse Canyon Formation** (Santonian to Coniacian)—Coal-bearing units are Dilco and Gibson Coal Members; other members are Bartlett Barren, Dalton Sandstone, and Borrego Pass Sandstone (or Lentil)

Kg **Gallup Sandstone** (Turonian)—Generally regressive marine sandstone

Kgm **Gallup Sandstone and underlying D-Cross Tongue of the Mancos Shale** (Turonian)

Kmr **Rio Salado Tongue of the Mancos Shale** (Turonian)—Overlies Twowells Tongue of Dakota Sandstone; mapped only where Tres Hermanos Formation or the Atarque Sandstone is present; mapped as Kdr in parts of Socorro County



Jsr **San Rafael Group** (Middle Jurassic)—Consists of Entrada Sandstone, Todilto and Summerville Formations, Bluff Sandstone, and locally Zuni Sandstone (or only Acoma Tongue of Zuni)

Kgc **Greenhorn Formation and Carlile Shale, undivided** (Turonian to Cenomanian)—Locally includes Graneros Shale

Kc **Carlile Shale** (Turonian)—Limited to northeastern area

Kgg **Greenhorn Formation and Graneros Shale** (Turonian and Cenomanian)—Limited to northeastern area

Kgh **Greenhorn Formation** (Turonian to Cenomanian)—Limited to northeastern area; the upper member (Bridge Creek Limestone Member) can be traced into western area where it is commonly shown as a bed-rank unit in Mancos Shale on detailed maps

Kgr **Graneros Shale** (Cenomanian)—Limited to northeastern area

Kmd **Intertongued Mancos Shale and Dakota Sandstone of west-central New Mexico** (Cenomanian)—Includes the Whitewater Arroyo Tongue of Mancos Shale and the Twowells Tongue of the Dakota

Kd **Dakota Sandstone** (Cenomanian)—Includes Oak Canyon, Cubero, and Paguate Tongues; includes Clay Mesa Tongue of Mancos Shale

Kdg **Upper and Lower Cretaceous rocks of east-central and northeast New Mexico**—Consists of Dakota Group, which includes Romeroville Sandstone (Cenomanian), Pajarito Shale, and Mesa Rica Sandstone (Albian); the underlying Tucumcari Shale (Albian) in Tucumcari area; and Glencairn Formation (Albian) in Union County

Kmb **Mancos Shale** (Cenomanian) **and Beartooth and Sarten Formations** (Albian)—Mancos includes what was formerly referred to as Colorado Shale, which in turn may include equivalents of Tres Hermanos Formation

Kl **Lower Cretaceous, undivided**—In northern Lea and Roosevelt Counties includes equivalents of Tucumcari Shale; in Cornudas Mountains includes Campagrande and Cox Formations and Washita Group; at Cerro de Cristo Rey includes several formations of the Fredericksburg and Washita Groups, and the Boquillas Formation (Cenomanian); in the southwest, includes Mojado, U-Bar (Aptian), and Hell-to-Finish Formations, which are equivalent to Bisbee Group of Arizona

JURASSIC

To compare this map nomenclature to the USGS nomenclature, see the diagram included on this sheet (at right)

J **Upper and Middle Jurassic rocks, undivided.** In southwest includes the basalt-bearing Broken Jug Formation

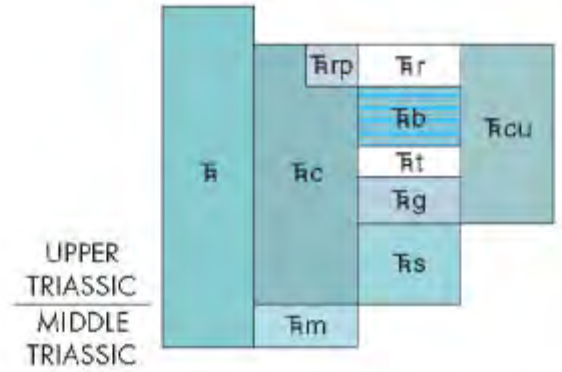
Jm **Morrison Formation**—Upper Jurassic nonmarine rocks

Jmsu **Morrison Formation and upper San Rafael Group** (lowermost Cretaceous?-upper Jurassic)

Jz **Zuni Sandstone** (Callovian)—Consists of undivided equivalents of the Summerville Formation and Bluff Sandstone; restricted to Zuni Basin area

Jze **Zuni and Entrada Sandstones, undivided**

Je **Entrada Sandstone** (Middle Jurassic)



TRIASSIC

Chinle Formation of previous workers (e.g., Stewart et al., 1972) is used here as Chinle Group, following Lucas (1993)

Tr **Triassic rocks, undivided**—Continental red beds

Trrp **Rock Point Formation of Chinle Group** (Upper Triassic)—May locally include Wingate Sandstone (Triassic)

Trc **Chinle Group** (Upper Triassic)—Map unit includes Moenkopi Formation (Middle Triassic) at base in many areas; in eastern part of state the following five formations are mapped:

Trr **Redonda Formation** (Upper Triassic)

Trb **Bull Canyon Formation** (Norian)

Trt **Trujillo Formation** (Norian)

Trg **Garita Creek Formation** (Carnian)

Trs **Santa Rosa Formation** (Carnian)—Includes Moenkopi Formation (Middle Triassic) at base in most areas

Trcu **Upper Chinle Group, Garita Creek through Redonda Formations, undivided**

Trm **Moenkopi Formation** (Middle Triassic)

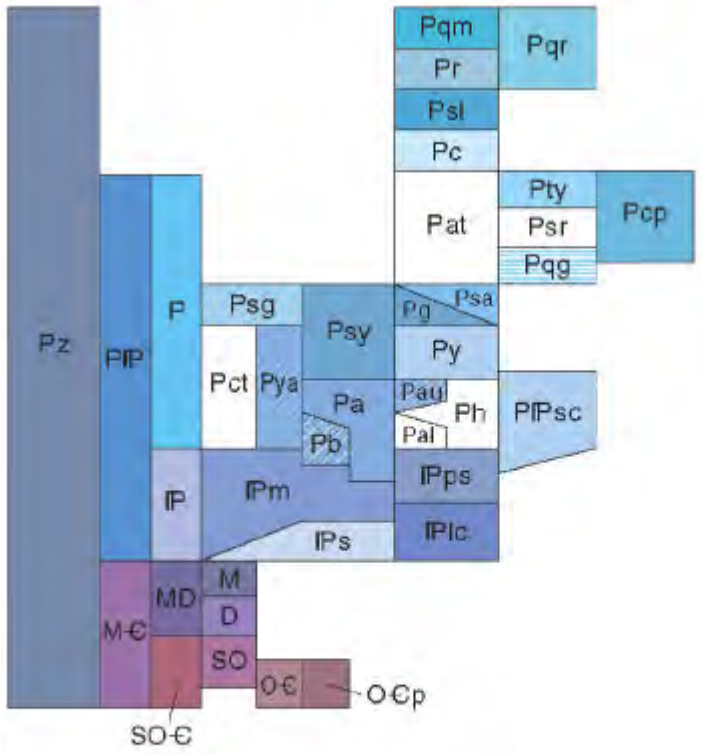
Map Source: Geologic Map of New Mexico, 2003.

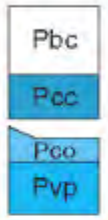
MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB148

FIGURE 5
LEGEND SHEET 5 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759





PALEOZOIC

Pz **Paleozoic rocks, undivided**

P **Permian rocks, undivided**

Pqm **Quartermaster Formation** (Upper Permian)—Red sandstone and siltstone

Pqr **Quartermaster and Rustler Formations** (Upper Permian)

Pr **Rustler Formation** (Upper Permian)—Siltstone, gypsum, sandstone, and dolomite

Psl **Salado Formation** (Upper Permian)—Evaporite sequence, dominantly halite

Pc **Castile Formation** (Upper Permian)—Dominantly anhydrite sequence

Pat **Artesia Group** (Guadalupian)—Shelf facies forming broad south-southeast trending outcrop from Glorieta to Artesia area; includes Tansill, Yates, Seven Rivers, Queen and Grayburg Formations (Guadalupian). May locally include Moenkopi Formation (Triassic) at top

Pty **Tansill and Yates Formations** (Guadalupian)—Sandstone, siltstone, limestone, dolomite, and anhydrite

Psr **Seven Rivers Formation** (Guadalupian)—Gypsum, anhydrite, salt, dolomite, and siltstone

Pqg **Queen and Grayburg Formations** (Guadalupian)—Sandstone, gypsum, anhydrite, dolomite, and red mudstone

Pcp **Capitan Formation** (Guadalupian)—Limestone (reef facies)

Pbc **Bell Canyon Formation** (Guadalupian)—Basin facies—sandstone, limestone, and shale

Pcc **Cherry Canyon Formation** (Guadalupian)—Basin facies—sandstone, limestone, and shale

Psa **San Andres Formation** (Guadalupian in south, in part Leonardian to north)—Limestone and dolomite with minor shale

Pg **Glorieta Sandstone** (Leonardian)—Texturally and mineralogically mature, high-silica quartz sandstone

Psg **San Andres Limestone and Glorieta Sandstone** (Guadalupian and Leonardian)

Pco **Cutoff Shale** (Leonardian)—In Brokeoff Mountains only

Pvp **Victorio Peak Limestone** (Leonardian)—In Brokeoff Mountains only

Py **Yeso Formation** (Leonardian)—Sandstones, siltstones, anhydrite, gypsum, halite, and dolomite

Pa **Abo Formation** (Wolfcampian)—Red beds, arkosic at base, finer and more mature above; may include limestone beds of Pennsylvanian age (Virgilian) in Zuni Mountains; in Robledo Mountains the Abo may be considered a member of the Hueco Formation

Pau **Upper part of Abo Formation** (Wolfcampian)

Pal **Lower part of Abo Formation** (locally Virgilian to Upper Pennsylvanian)

Psy **San Andres, Glorieta, and Yeso Formations, undivided**

Pya **Yeso and Abo Formations, undivided** (Lower Permian)

Pct **Cutler Formation** (Wolfcampian to Upper Pennsylvanian)—Used in northern areas and Chama embayment only

Ph **Hueco Formation or Group** (Wolfcampian)—Limestone unit restricted to south-central area. Pendejo Tongue of Hueco Formation divides Abo Formation into upper and lower parts in Sacramento Mountains

Pb **Bursum Formation** (lowermost Permian to uppermost Pennsylvanian)—Shale, arkose, and limestone

PIP **Permian and Pennsylvanian rocks, undivided**—Includes Concha, Scherrer, Colina, Epitaph, and Earp Formations (Permian) and Horquilla Limestone (Permian to Pennsylvanian)

PIPsc **Sangre de Cristo Formation** (Wolfcampian to Desmoinesian)—In Sangre de Cristo Mountains

IP **Pennsylvanian rocks, undivided**—In Sangre de Cristo Mountains may include Sandia, Madera, La Pasada, Alamitos, and Flechado Formations; elsewhere may include Bar-B, Nakaye, Red House, Oswaldo, and Syrena Formations

IPm **Madera Group** (Pennsylvanian)—In Manzano Mountains includes Wild Cow Formation and Los Moyos Limestone; in Lucero Mesa includes Red Tanks, Atrasado, Gray Mesa Formations; in Sacramento Mountains includes the non-Madera Holder, Beeman, and Gobbler Formations. May include strata lumped as Magdalena Group in a few areas

IPs **Sandia Formation** (Atokan)—Predominantly clastic unit (commonly arkosic) with minor black shales, and limestone in lower part; map unit locally includes Morrowan Osha Canyon Formation in Sierra Nacimiento

IPps **Panther Seep Formation** (Virgilian)—In Organ, Franklin, and San Andres Mountains

IPlc **Lead Camp Formation** (Atokan to Missourian)—In San Andres and Organ Mountains

M **Mississippian rocks, undivided**—Arroyo Peñasco Group in Sangre de Cristo Mountains, Sierra Nacimiento, San Pedro Mountains, and Sandia Mountains; Lake Valley Limestone in south-central New Mexico

MD **Mississippian and Devonian rocks, undivided**—Includes Helms, Rancheria, Las Cruces, Lake Valley, and Caballero Formations and Escabrosa Group (Mississippian); Percha Shale, Contadero, Sly Gap, and Oñate Formations of south-central New Mexico, and Canutillo Formation of northern Franklin Mountains and Bishops Cap area (Devonian)

M-C **Mississippian through Cambrian rocks, undivided**—Includes Lake Valley Limestone (Mississippian); Devonian rocks, undivided; El Paso Formation and Montoya Group or Formation (Ordovician); and Bliss Sandstone (Ordovician and Cambrian)

D **Devonian rocks undivided**—Includes Percha Shale, Oñate, and Sly Gap Formations

SO **Silurian and Ordovician rocks, undivided**

SO-C **Silurian through Cambrian rocks, undivided**

O-C **Ordovician and Cambrian rocks, undivided**—Includes Montoya Formation (or Group), El Paso Formation, and Bliss Sandstone

O-Cp **Ordovician and Cambrian plutonic rocks of Florida Mountains**

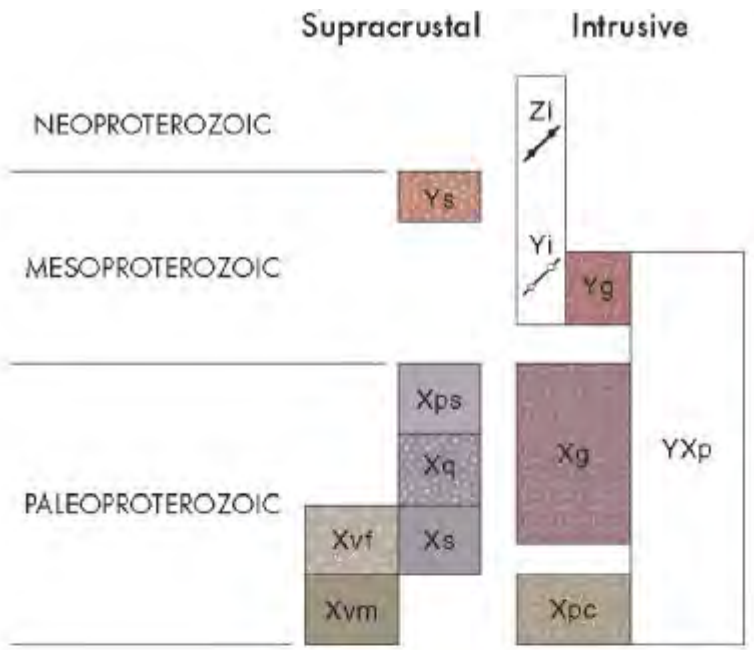
Map Source: Geologic Map of New Mexico, 2003.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB148

FIGURE 5
LEGEND SHEET 6 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



MAP SYMBOLS

- Contact
- Nomenclature change
- Gradational facies boundary
- Fault–Dashed where approximately located, dotted where concealed
- Tertiary dikes
- Proterozoic dikes
- Proterozoic ductile shear zone
- Playa

PROTEROZOIC

Zi **Neoproterozoic mafic dikes**–Exposed in Taos Range

Yi **Mesoproterozoic mafic dikes, diabase, metadiabase, metadiorite**–Mainly in Burro Mountains; age not well constrained

Ys **Mesoproterozoic sedimentary rocks**–Exposed in Sacramento Mountains, present in subsurface in southeastern New Mexico as De Baca Group

Yg **Mesoproterozoic granitic plutonic rocks**–Mainly 1.45-1.35 Ga megacrystic granites, generally weakly foliated except locally at their margins

YXp **Mesoproterozoic and Paleoproterozoic plutonic rocks, undivided**

Xg **Paleoproterozoic granitic plutonic rocks**–Variably foliated granites and granitic gneisses; 1.71-1.65 Ga in northern New Mexico; 1.66-1.65 Ga in central and southern New Mexico

Xps **Paleoproterozoic pelitic schist**–Includes Rinconada Formation in northern New Mexico and Blue Springs Schist in Manzano Mountains

Xq **Paleoproterozoic quartzite**–Includes ~1.70 Ga Ortega Quartzite and equivalents in northern New Mexico and ~1.67 Ga quartzites in central New Mexico

Xs **Paleoproterozoic metasedimentary rocks**–Pelitic schist, quartz-muscovite schist, immature quartzite, and subordinate amphibolite; includes parts of Vadito Group in northern New Mexico, immature metasedimentary rocks of central New Mexico, and Bullard Peak Series mixed supracrustal rocks in Burro Mountains

Xvf **Paleoproterozoic rhyolite and felsic volcanic schist**–Includes 1.70 Ga Vadito Group in northern New Mexico and ~1.68 Ga Sevilleta Metarhyolite in central New Mexico

Xpc **Paleoproterozoic calc-alkaline plutonic rocks**–Granodiorite, diorite, and gabbro complexes; 1.78-1.71 Ga; interpreted to be intrusive part of juvenile volcanic arc basement

Xvm **Paleoproterozoic mafic metavolcanic rocks with subordinate felsic metavolcanic rocks**–Includes the 1.78-1.72 Ga Moppin (Tusas Mountains), Gold Hill (Taos Range), and Pecos (Sangre de Cristo Mountains) complexes; interpreted to be supracrustal part of juvenile volcanic arc basement

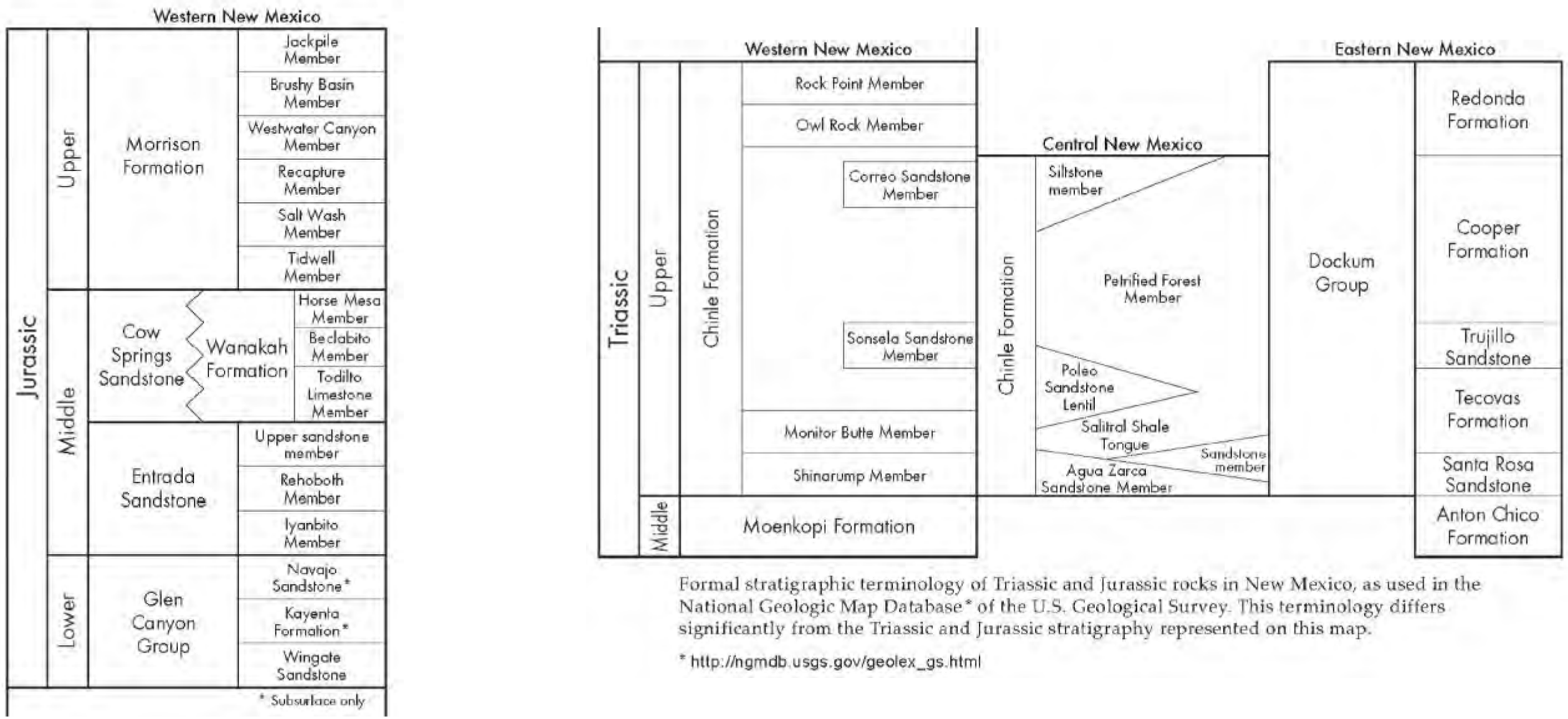
Map Source: Geologic Map of New Mexico, 2003.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon	DATE: 4/16/19	FILE: Mathon-dB148

FIGURE 5
LEGEND SHEET 7 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Formal stratigraphic terminology of Triassic and Jurassic rocks in New Mexico, as used in the National Geologic Map Database* of the U.S. Geological Survey. This terminology differs significantly from the Triassic and Jurassic stratigraphy represented on this map.

* http://ngmdb.usgs.gov/geolex_gs.html

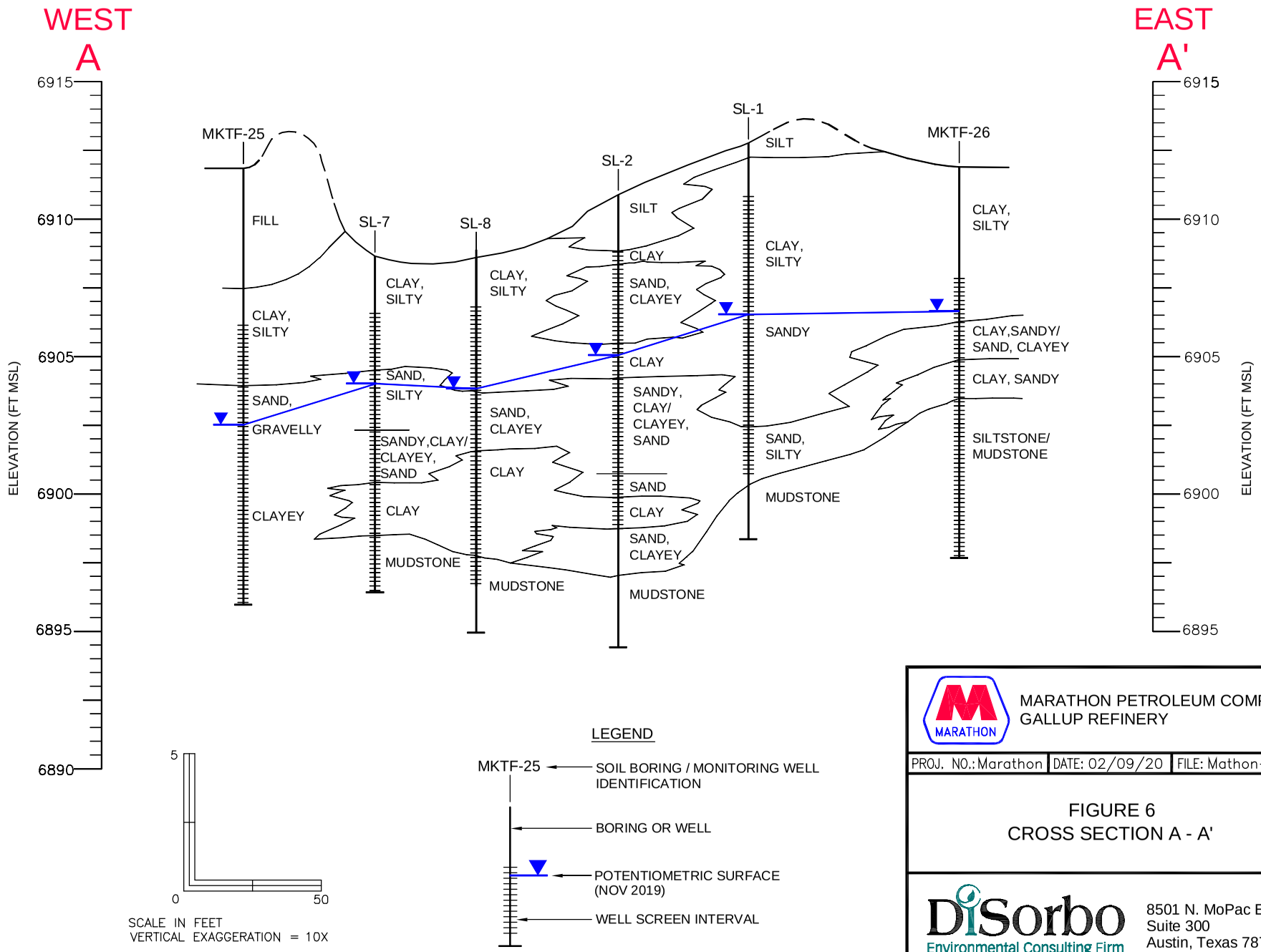
Map Source: Geologic Map of New Mexico, 2003.

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB148

FIGURE 5
LEGEND SHEET 8 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



MARATHON PETROLEUM COMPANY
GALLUP REFINERY

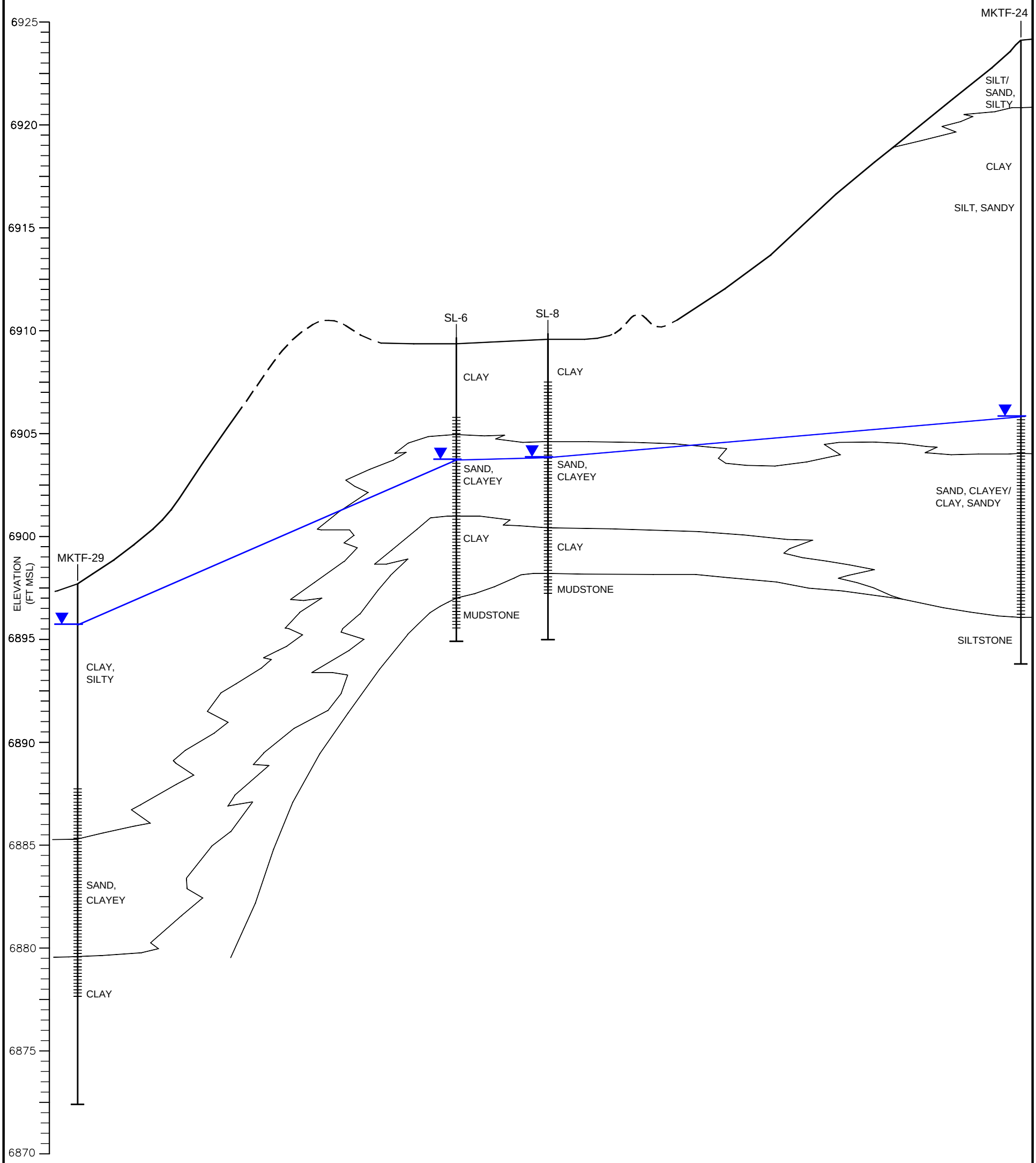
PROJ. NO.: Marathon	DATE: 02/09/20	FILE: Mathon–dA187

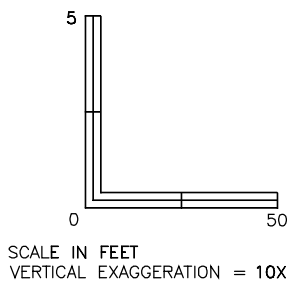
FIGURE 6
CROSS SECTION A - A'

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

NORTH
B

SOUTH
B'





LEGEND

MKTF-29 ← SOIL BORING / MONITORING WELL IDENTIFICATION

← BORING OR WELL

← POTENTIOMETRIC SURFACE (NOV 2019)

← WELL SCREEN INTERVAL

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/09/20 | FILE: Mathon–dB239

FIGURE 7
CROSS SECTION B - B'

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

LEGEND

MKTF-24	PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER
SL-1	SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
6905.92	GROUNDWATER ELEVATION (FEET MSL)
6900	CONTOUR OF GROUNDWATER ELEVATION CONTOUR INTERVAL = 5'

0 100
SCALE IN FEET

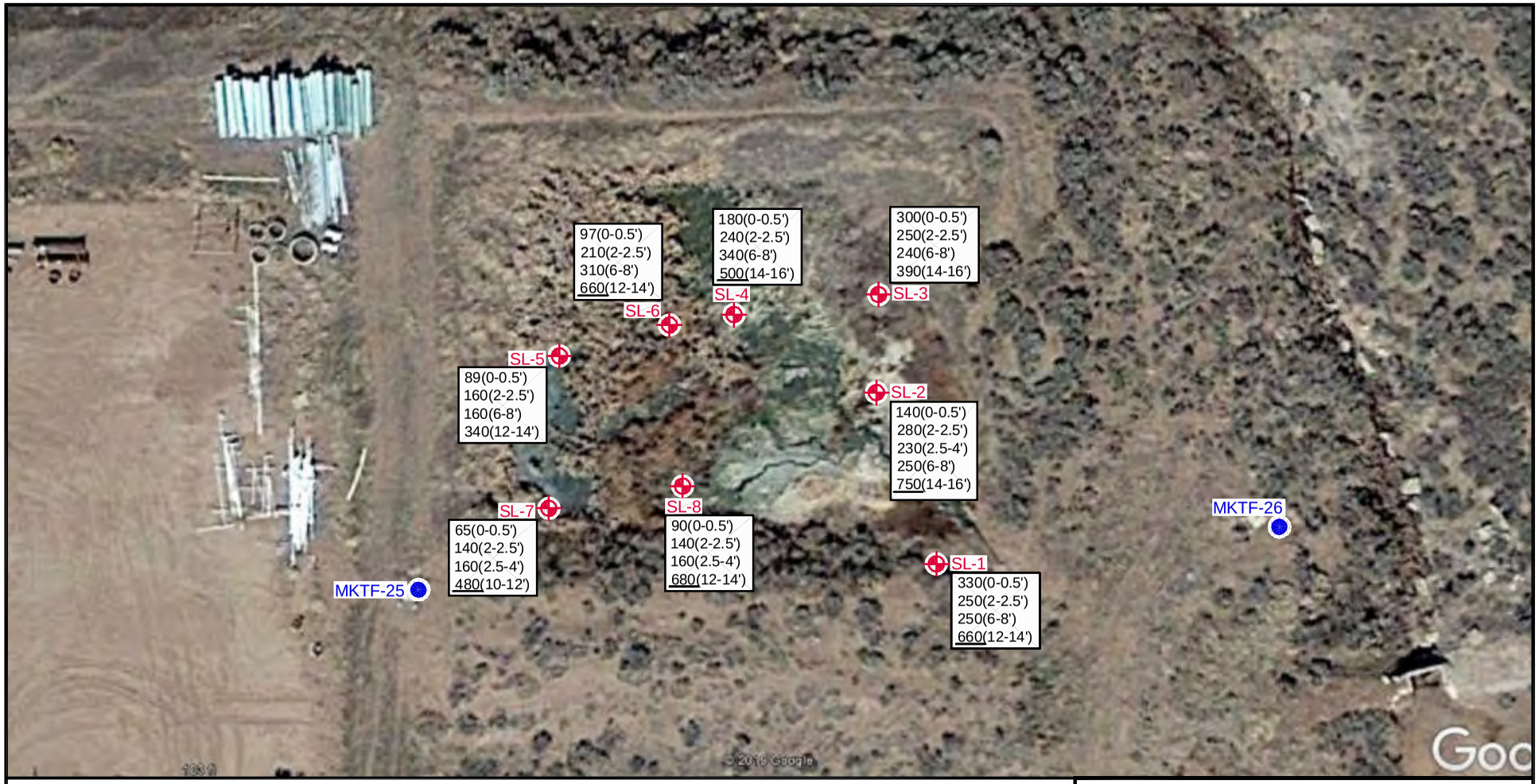
NEW MEXICO
GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/09/20 | FILE: Mathon–dB240

FIGURE 8
NOVEMBER 2019
POTENTIOMETRIC SURFACE MAP

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

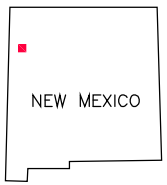
LEGEND

MKTF-24 ●	PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER
SL-1 ⊕	SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
89(0-0.5')	MANGANESE CONCENTRATION, mg/kg (SAMPLE DEPTH-FT)
464	UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL

N

0 40

SCALE IN FEET



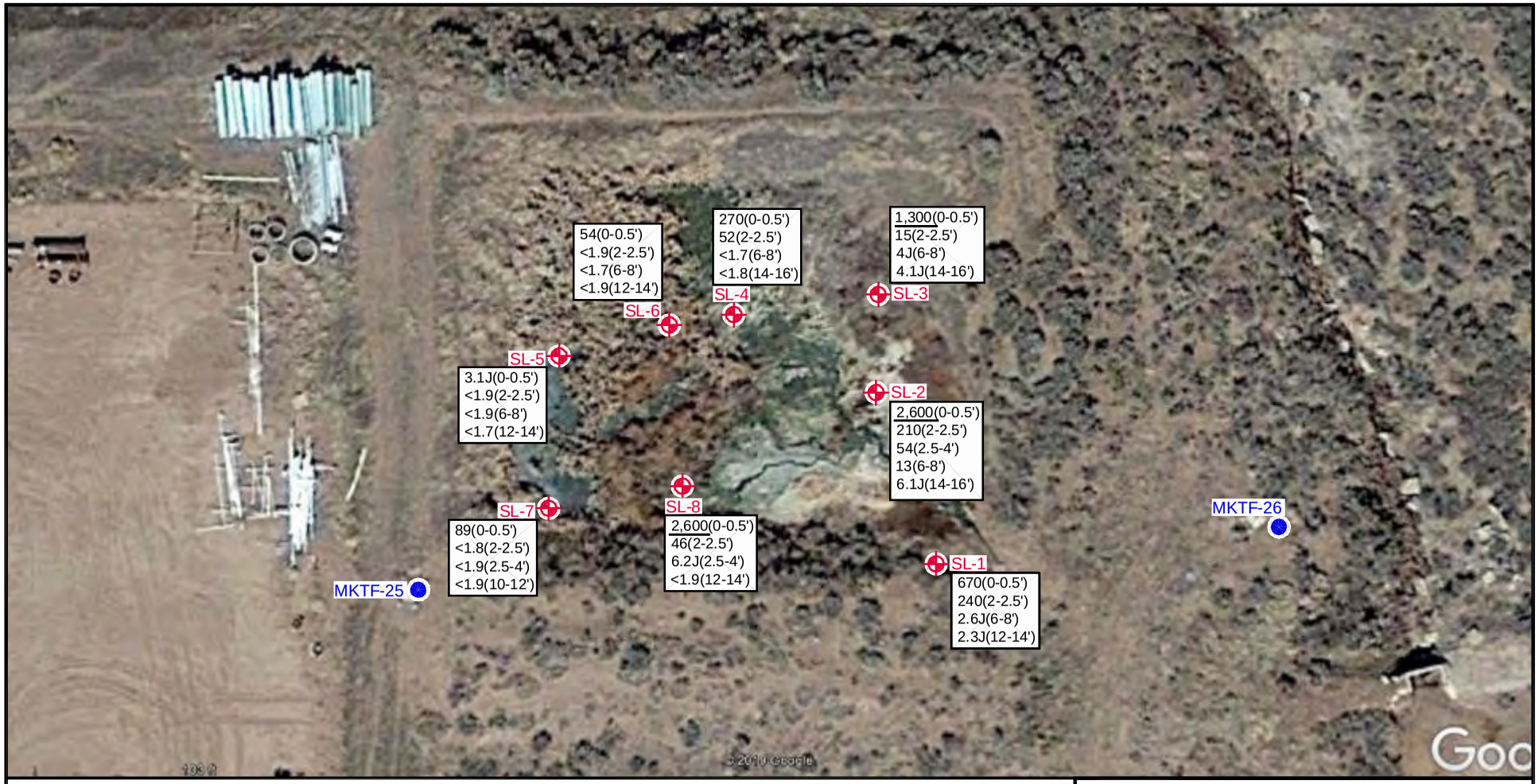
GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/10/20 | FILE: Mathon–dA188

FIGURE 9
MANGANESE
SOILS CONCENTRATION MAP

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

LEGEND

MKTF-24 — PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER

SL-1 — SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

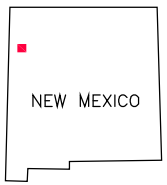
270(0-0.5') — DIESEL RANGE ORGANICS CONCENTRATION, mg/kg (SAMPLE DEPTH-FT)

1,000 — UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL

N

0 40

SCALE IN FEET



GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/10/20 | FILE: Mathon–dA189

FIGURE 10
DIESEL RANGE ORGANICS SOILS CONCENTRATION MAP

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

0 100
SCALE IN FEET

LEGEND

MKTF-24	PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER
SL-1	SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
1,000	IRON TOTAL CONCENTRATION, µg/L
1,000	IRON DISSOLVED CONCENTRATION, µg/L
200	MANGANESE TOTAL CONCENTRATION, µg/L
200	MANGANESE DISSOLVED CONCENTRATION, µg/L
NS	NO SAMPLE PRODUCT IN WELL
	UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL



GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.:Marathon | DATE: 02/10/20 | FILE: Mathon-dB241

FIGURE 11
IRON AND MANGANESE
GROUNDWATER CONCENTRATION MAP

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

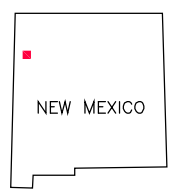


Aerial Map Source: Google Map, 03/18/2016.

0 100
SCALE IN FEET

LEGEND

MKTF-24	PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER
SL-1	SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
250,000	CHLORIDE CONCENTRATION, µg/L
600,000	SULFATE CONCENTRATION, µg/L
NS	NO SAMPLE PRODUCT IN WELL
	UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL



GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/11/20 | FILE: Mathon–dB242

FIGURE 12
CHLORIDE AND SULFATE
GROUNDWATER CONCENTRATION MAP

DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

0 100
SCALE IN FEET

LEGEND

MKTF-24 — PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER

SL-1 — SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

25 — 1,1-DICHLOROETHANE CONCENTRATION, µg/L
7 — 1,1-DICHLOROETHENE CONCENTRATION, µg/L
5 — 1,2-DICHLOROETHANE CONCENTRATION, µg/L
11.4 — 1-METHYLNAPHTHALENE CONCENTRATION, µg/L

NS — NO SAMPLE PRODUCT IN WELL

UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL



GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon	DATE: 02/11/20	FILE: Mathon–dB243

FIGURE 13
1,1-DICHLOROETHANE, 1,1-DICHLOROETHENE, 1,2-DICHLOROETHANE AND 1-METHYLNAPHTHALENE GROUNDWATER CONCENTRATION MAP

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

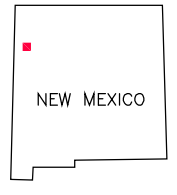


Aerial Map Source: Google Map, 03/18/2016.

0 100
SCALE IN FEET

LEGEND

MKTF-24	PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER
SL-1	SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
5	BENZENE CONCENTRATION, µg/L
100	MTBE CONCENTRATION, µg/L
5	TRICHLOROETHENE CONCENTRATION, µg/L
2	VINYL CHLORIDE CONCENTRATION, µg/L
NS	NO SAMPLE PRODUCT IN WELL
	UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL



GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/11/20 | FILE: Mathon-dB244

FIGURE 14
BENZENE, MTBE, TRICHLOROETHENE AND VINYL CHLORIDE GROUNDWATER CONCENTRATION MAP

DiSorbo Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



Aerial Map Source: Google Map, 03/18/2016.

LEGEND

MKTF-24 ●	PERMANENT WELL LOCATION AND IDENTIFICATION NUMBER
SL-1 ⊕	SOIL BORING / TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
10.1	GASOLINE RANGE ORGANICS (GRO) CONCENTRATION, µg/L
85.8	DIESEL RANGE ORGANICS (DRO) CONCENTRATION, µg/L
NS	NO SAMPLE PRODUCT IN WELL
	UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL

N

0 100
SCALE IN FEET



GALLUP SITE LOCATION

MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 02/11/20 | FILE: Mathon–dB245

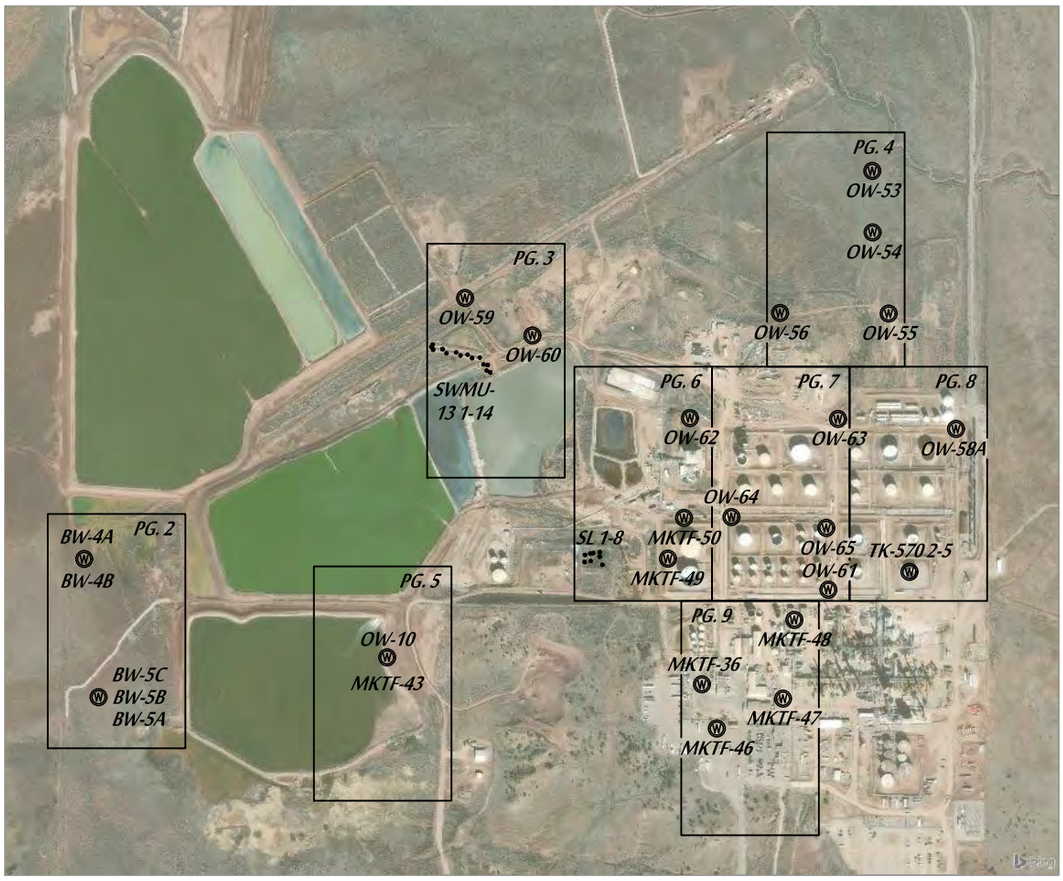
FIGURE 15
GASOLINE RANGE ORGANICS AND DIESEL RANGE ORGANICS GROUNDWATER CONCENTRATION MAP

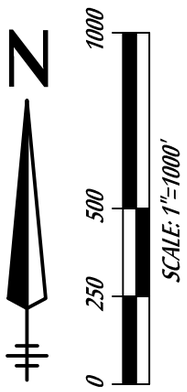
DiSorbo
Environmental Consulting Firm
8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

Appendix A

Survey

MONITORING WELL and BORE SITE SURVEY in Sections 28 & 33, T15N, R15W, N.M.P.M., Marathon Gallup Refinery, Jamestown, McKinley County, New Mexico, U.S.A.





NOTES

1. FIELD SURVEY PERFORMEDNOVEMBER 18, 2019, 8:00 a.m. to 5:00 p.m.
2. FIELD MEASUREMENTS PERFORMED UTILIZING TOPCON 'GR-3' BASE AND ROVER G.P.S. SYSTEM WHICH CAN NOT BE CALIBRATED.
3. THE BORE SITES WERE IDENTIFIED BY DISORBO CONSULTING, LLC. PERSONNEL AND WERE VISIBLE AS EVIDENCE OF A BORE HOLE.
4. STATE PLANE COORDINATES BASED ON THE BRASS CAP I-040-105 USING DIFFERENTIAL G.P.S. DERIVED MEASUREMENTS.
5. THE COORDINATE LIST SHOWN ARE N.M. STATE PLANE WEST ZONE GRID COORDINATES, ELEVATIONS ARE NAVD88 (-3.37 TO REACH NGVD29).

SYMBOLS LEGEND

- Ⓦ MONITORING WELL
- · SOIL BORE

SURVEYOR'S CERTIFICATE

I, Clyde J. King, a New Mexico Professional Surveyor do hereby certify that this plat was prepared from a field survey performed by me or under my direct supervision, that I am responsible for this survey, that this survey is true and correct to the best of my knowledge and belief, that this plat and the field survey upon which it is based meet the Minimum Standards for Surveying in New Mexico and that this survey is not a land division or subdivision as defined by the New Mexico Subdivision Act.

CLYDE J. KING NEW MEXICO 13979 REGISTERED PROFESSIONAL SURVEYOR

Clyde J. King, PS13979

11-19-19
Date

HAMMON ENTERPRISES, INC. H.E.I. PROFESSIONAL SURVEYING SERVICES
P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M.,
Marathon Gallup Refinery, Jamestown,
McKinley County, New Mexico, U.S.A.

BW-4A

BW-4B

BW-4A

N: 1634063.04
E: 2542465.11 CENTER OF METAL LID
Z: 6872.55 TOP CENTER OF METAL LID
Z: 6872.20 N. TOP OF PVC PIPE
Z: 6869.68 TOP OF CONCRETE PAD N. OF CASING
Z: 6869.28 NATURAL GROUND N. OF PAD

BW-4B

N: 1634043.32
E: 2542462.85 CENTER OF METAL LID
Z: 6872.68 TOP CENTER OF METAL LID
Z: 6872.24 N. TOP OF PVC PIPE
Z: 6869.80 TOP OF CONCRETE PAD N. OF CASING
Z: 6869.45 NATURAL GROUND N. OF PAD

BW-5C

N: 1633279.48
E: 2542552.85 CENTER OF METAL LID
Z: 6876.32 TOP CENTER OF METAL LID
Z: 6877.30 N. TOP OF PVC PIPE
Z: 6873.31 TOP OF CONCRETE PAD N. OF CASING
Z: 6872.92 NATURAL GROUND N. OF PAD

BW-5B

N: 1633269.46
E: 2542551.64 CENTER OF METAL LID
Z: 6876.24 TOP CENTER OF METAL LID
Z: 6875.84 N. TOP OF PVC PIPE
Z: 6873.36 TOP OF CONCRETE PAD N. OF CASING
Z: 6873.30 NATURAL GROUND N. OF PAD

BW-5C

BW-5B

BW-5A

SYMBOLS LEGEND

- MONITORING WELL
- SOIL BORE

BW-5A

N: 1633259.76
E: 2542551.42 CENTER OF METAL LID
Z: 6876.43TOP CENTER OF METAL LID
Z: 6876.06 N. TOP OF PVC PIPE
Z: 6873.39 TOP OF CONCRETE PAD N. OF CASING
Z: 6873.18 NATURAL GROUND N. OF PAD

N

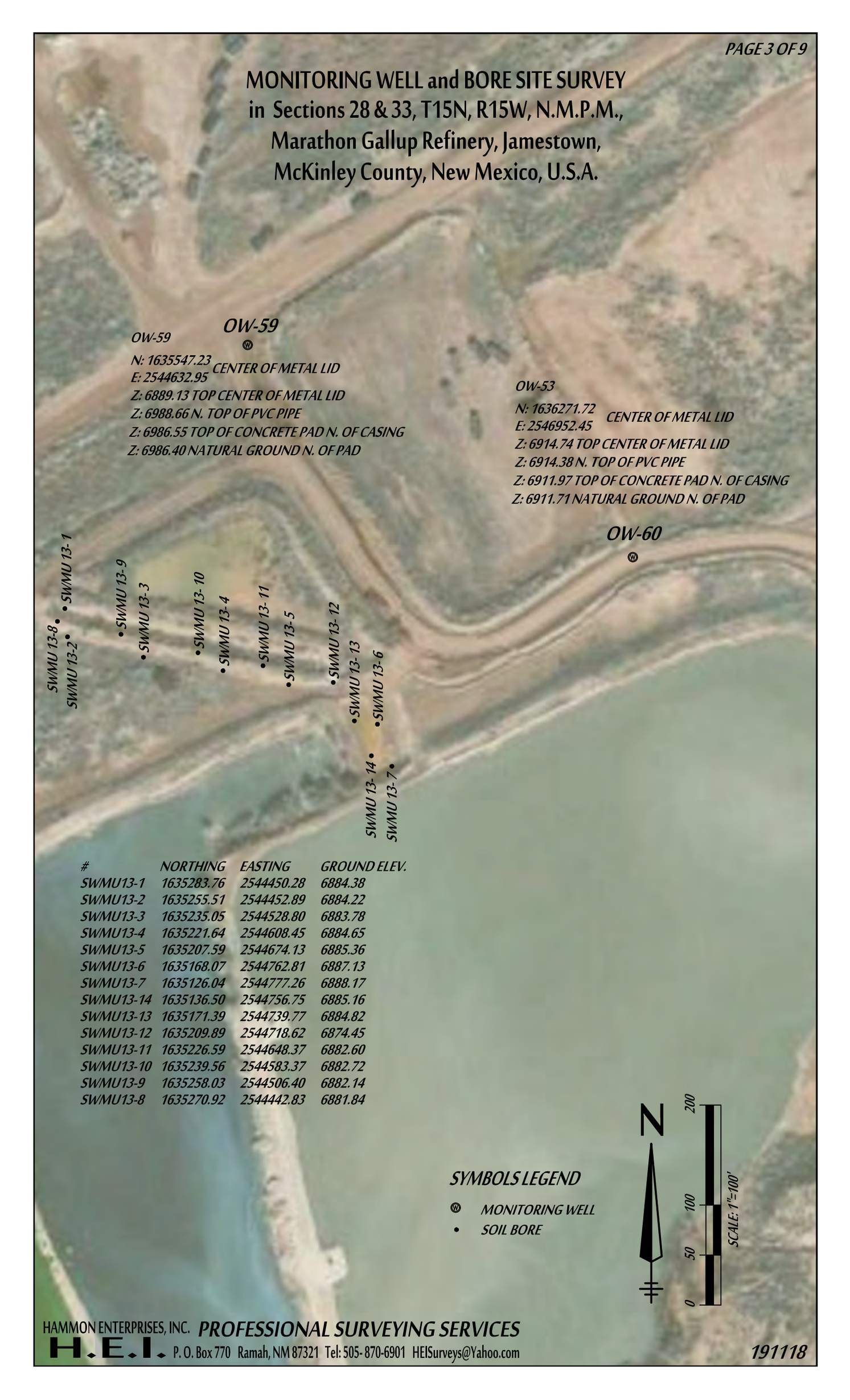
0 50 100 200

SCALE: 1"=100'

HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M., Marathon Gallup Refinery, Jamestown, McKinley County, New Mexico, U.S.A.



#	NORTHING	EASTING	GROUND ELEV.
SWMU13-1	1635283.76	2544450.28	6884.38
SWMU13-2	1635255.51	2544452.89	6884.22
SWMU13-3	1635235.05	2544528.80	6883.78
SWMU13-4	1635221.64	2544608.45	6884.65
SWMU13-5	1635207.59	2544674.13	6885.36
SWMU13-6	1635168.07	2544762.81	6887.13
SWMU13-7	1635126.04	2544777.26	6888.17
SWMU13-14	1635136.50	2544756.75	6885.16
SWMU13-13	1635171.39	2544739.77	6884.82
SWMU13-12	1635209.89	2544718.62	6874.45
SWMU13-11	1635226.59	2544648.37	6882.60
SWMU13-10	1635239.56	2544583.37	6882.72
SWMU13-9	1635258.03	2544506.40	6882.14
SWMU13-8	1635270.92	2544442.83	6881.84

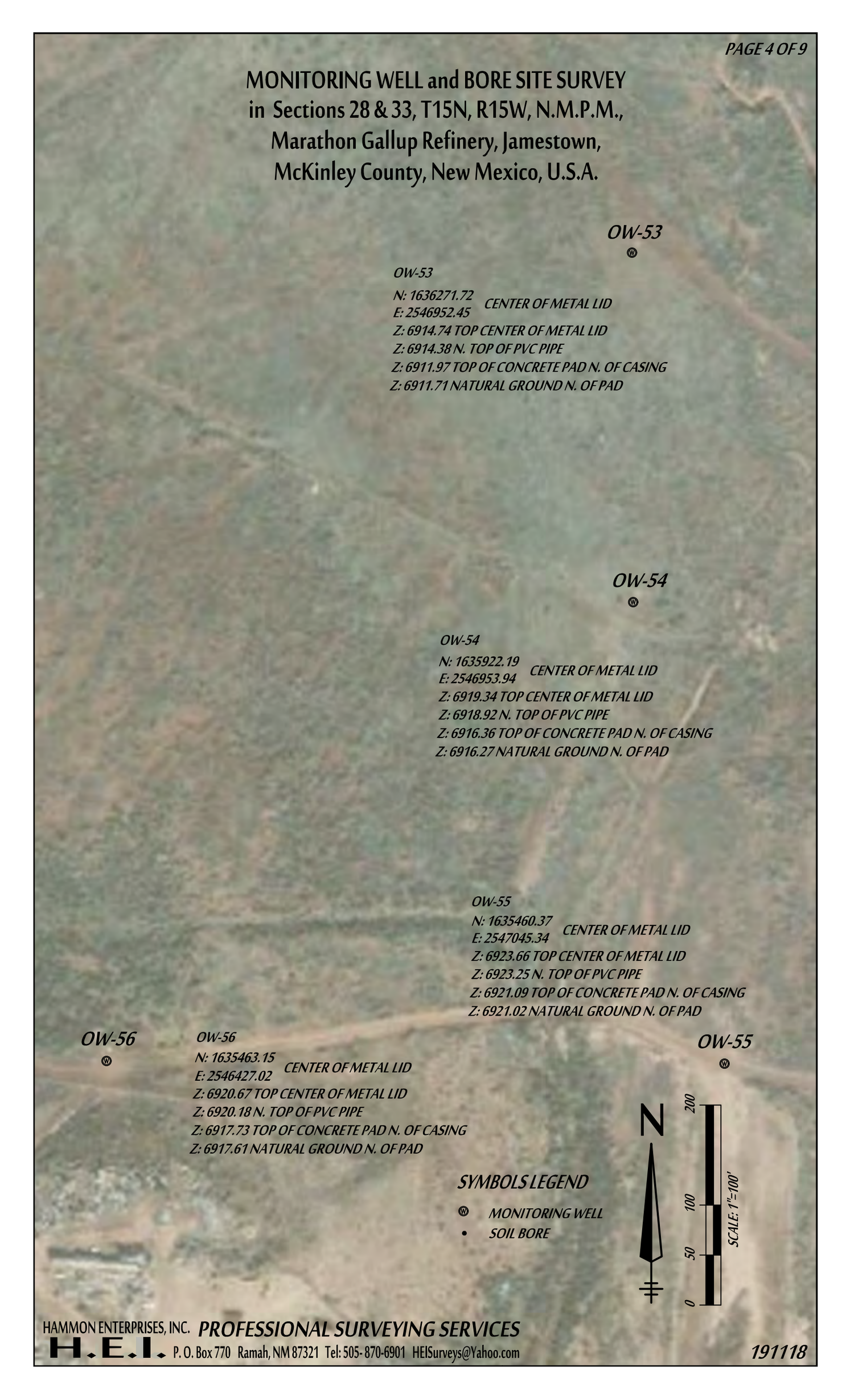
SYMBOLS LEGEND

- MONITORING WELL
- SOIL BORE

HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505-870-6901 HEISurveys@Yahoo.com

191118

MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M.,
Marathon Gallup Refinery, Jamestown,
McKinley County, New Mexico, U.S.A.



HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M., Marathon Gallup Refinery, Jamestown, McKinley County, New Mexico, U.S.A.



OW-10

N: 1633508.16
E: 2544188.11
CENTER OF METAL LID
Z: 6882.74 TOP CENTER OF METAL LID
Z: 6882.41 N. TOP OF PVC PIPE
Z: 6879.71 TOP OF CONCRETE PAD N. OF CASING
Z: 6879.45 NATURAL GROUND N. OF PAD

MKTF-43

N: 1633490.95
E: 2544190.29
CENTER OF METAL LID
Z: 6882.20 TOP CENTER OF METAL LID
Z: 6881.82 N. TOP OF PVC PIPE
Z: 6879.61 TOP OF CONCRETE PAD N. OF CASING
Z: 6879.16 NATURAL GROUND N. OF PAD

HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M., Marathon Gallup Refinery, Jamestown, McKinley County, New Mexico, U.S.A.



OW-62

N: 1634865.81
E: 2545913.84
CENTER OF METAL LID
Z: 6936.61 TOP CENTER OF METAL LID
Z: 6936.09 N. TOP OF PVC PIPE
Z: 6933.51 TOP OF CONCRETE PAD N. OF CASING
Z: 6933.21 NATURAL GROUND N. OF PAD

MKTF-50

N: 1634294.68
E: 2545881.16
CENTER OF METAL LID
Z: 6943.15 TOP CENTER OF METAL LID
Z: 6942.82 N. TOP OF PVC PIPE
Z: 6940.26 TOP OF CONCRETE PAD N. OF CASING
Z: 6939.68 NATURAL GROUND N. OF PAD

#	NORTHING	EASTING	GROUND ELEV.
SL1	1634031.88	2545416.32	6912.71
SL2	1634076.89	2545400.90	6910.74
SL3	1634102.58	2545401.63	6910.01
SL4	1634097.56	2545363.76	6909.37
SL5	1634087.00	2545317.94	6909.72
SL6	1634094.95	2545346.84	6909.54
SL7	1634047.08	2545314.94	6908.81
SL8	1634052.67	2545350.02	6909.67

MKTF-49

N: 1634064.06
E: 2545788.35
CENTER OF METAL LID
Z: 6947.06 TOP CENTER OF METAL LID
Z: 6946.76 N. TOP OF PVC PIPE
Z: 6944.25 TOP OF CONCRETE PAD N. OF CASING
Z: 6944.00 NATURAL GROUND N. OF PAD

SYMBOLS LEGEND

- MONITORING WELL
- SOIL BORE

HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M., Marathon Gallup Refinery, Jamestown, McKinley County, New Mexico, U.S.A.



OW-63

OW-63
N: 1634859.85
E: 2546756.20 CENTER OF METAL LID
Z: 6934.20 TOP CENTER OF METAL LID
Z: 6933.87 N. TOP OF PVC PIPE
Z: 6931.21 TOP OF CONCRETE PAD N. OF CASING
Z: 6930.87 NATURAL GROUND N. OF PAD

OW-64

N: 1634301.16
E: 2546150.83 CENTER OF METAL LID
Z: 6946.67 TOP CENTER OF METAL LID
Z: 6946.09 N. TOP OF PVC PIPE
Z: 6943.90 TOP OF CONCRETE PAD N. OF CASING
Z: 6943.32 NATURAL GROUND N. OF PAD

OW-65

N: 1634238.04
E: 2546691.91 CENTER OF METAL LID
Z: 6953.23 TOP CENTER OF METAL LID
Z: 6952.83 N. TOP OF PVC PIPE
Z: 6950.43 TOP OF CONCRETE PAD N. OF CASING
Z: 6949.95 NATURAL GROUND N. OF PAD

OW-64

OW-65

SYMBOLS LEGEND

Ⓦ MONITORING WELL
• SOIL BORE

OW-61

N: 1633887.50
E: 2546702.23 CENTER OF METAL LID
Z: 6962.75 TOP CENTER OF METAL LID
Z: 6961.88 N. TOP OF PVC PIPE
Z: 6959.69 TOP OF CONCRETE PAD N. OF CASING
Z: 6959.29 NATURAL GROUND N. OF PAD

N

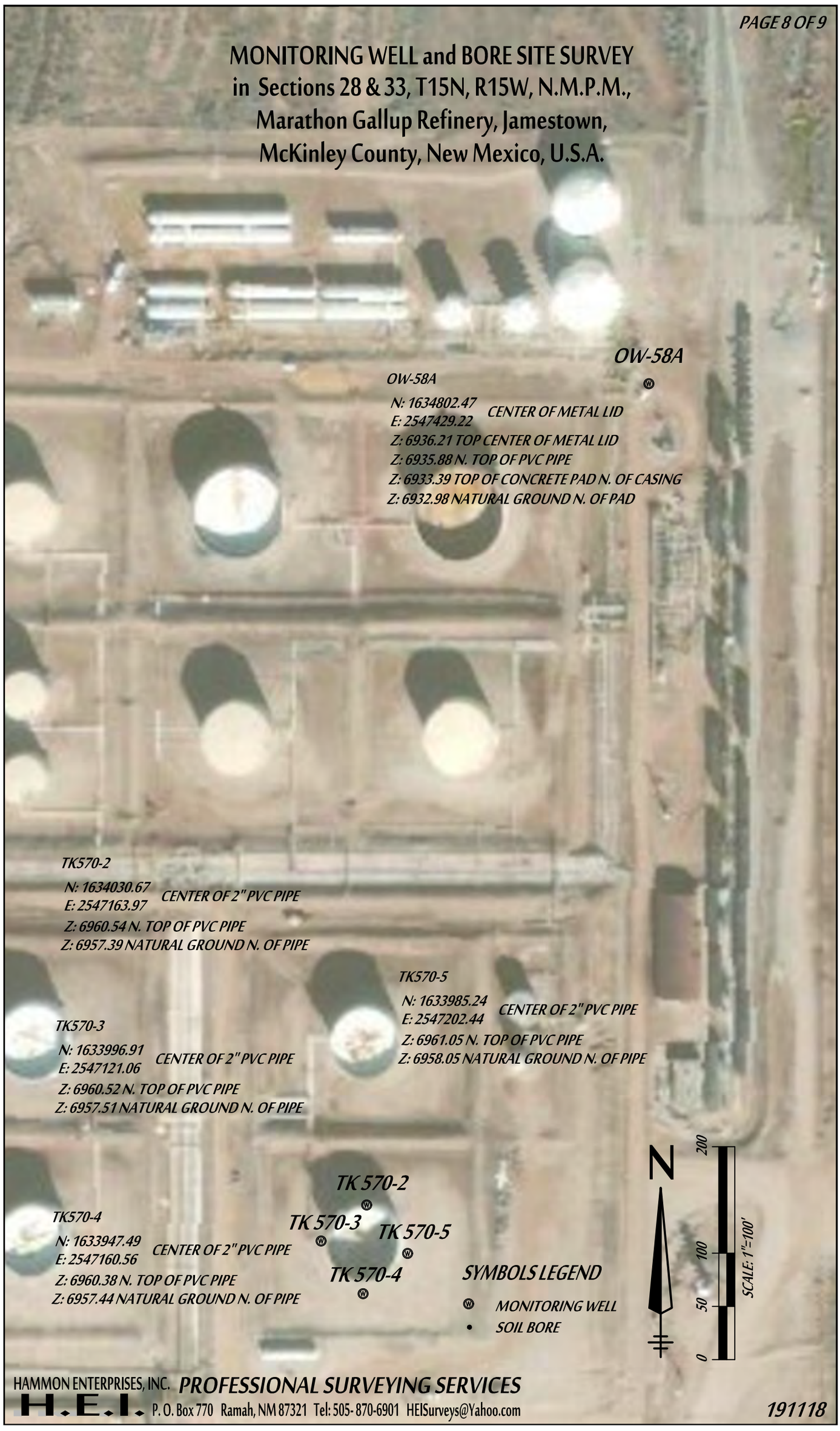
200
100
50
0
SCALE: 1"=100'

OW-61

HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

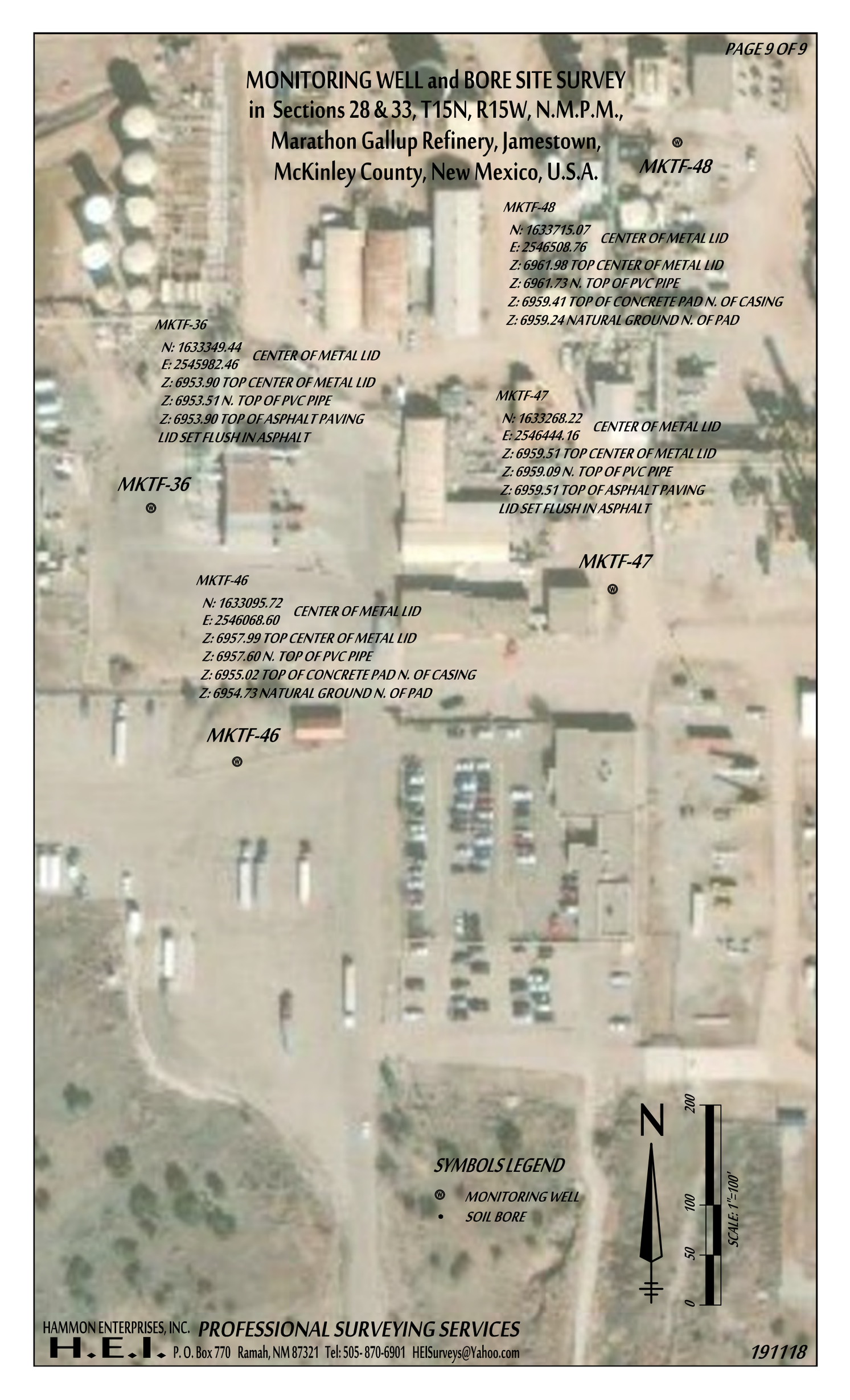
MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M., Marathon Gallup Refinery, Jamestown, McKinley County, New Mexico, U.S.A.



HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

MONITORING WELL and BORE SITE SURVEY
in Sections 28 & 33, T15N, R15W, N.M.P.M., Marathon Gallup Refinery, Jamestown, McKinley County, New Mexico, U.S.A.



MKTF-48
N: 1633715.07
E: 2546508.76
CENTER OF METAL LID
Z: 6961.98 TOP CENTER OF METAL LID
Z: 6961.73 N. TOP OF PVC PIPE
Z: 6959.41 TOP OF CONCRETE PAD N. OF CASING
Z: 6959.24 NATURAL GROUND N. OF PAD

MKTF-36
N: 1633349.44
E: 2545982.46
CENTER OF METAL LID
Z: 6953.90 TOP CENTER OF METAL LID
Z: 6953.51 N. TOP OF PVC PIPE
Z: 6953.90 TOP OF ASPHALT PAVING
LID SET FLUSH IN ASPHALT

MKTF-47
N: 1633268.22
E: 2546444.16
CENTER OF METAL LID
Z: 6959.51 TOP CENTER OF METAL LID
Z: 6959.09 N. TOP OF PVC PIPE
Z: 6959.51 TOP OF ASPHALT PAVING
LID SET FLUSH IN ASPHALT

MKTF-46
N: 1633095.72
E: 2546068.60
CENTER OF METAL LID
Z: 6957.99 TOP CENTER OF METAL LID
Z: 6957.60 N. TOP OF PVC PIPE
Z: 6955.02 TOP OF CONCRETE PAD N. OF CASING
Z: 6954.73 NATURAL GROUND N. OF PAD

SYMBOLS LEGEND
- MONITORING WELL
- SOIL BORE

HAMMON ENTERPRISES, INC. PROFESSIONAL SURVEYING SERVICES
H.E.I. P. O. Box 770 Ramah, NM 87321 Tel: 505- 870-6901 HEISurveys@Yahoo.com

191118

Appendix B
Field Methods

Field Methods

Pursuant to the *Investigation Work Plan for the Sanitary Lagoon*, an investigation of soils and groundwater was conducted to determine and evaluate the presence, nature, extent, fate, and transport of contaminants. To accomplish this objective, soil borings and temporary monitoring wells were installed at the Sanitary Lagoon. The field methods are described below and individual discussions are presented for the following activities:

- Drilling procedures;
- Soil screening;
- Decontamination procedures;
- Fluid level measurements;
- Well development/purging;
- Sample collection and handling procedures;
- Equipment calibration; and
- Management of investigation derived waste.

Drilling Procedures

The soil borings were drilled using the hollow-stem auger (HSA) method. The drilling rig was a track mounted CME 55. In addition, a hand auger was used to collect soil samples from the ground surface to a depth of five feet. Soil samples were collected continuously and logged by a qualified geologist in accordance with the Unified Soil Classification System (USCS) nomenclature. As shown on the boring logs, the data recorded included the lithologic interval, symbol, percent recovery, field screening results, and a sample description of the cuttings and core samples. Soil samples that were collected using the split spoon sampler were photographed.

Soil Screening

Samples obtained from the borings were screened in the field on 2-foot intervals for evidence of contaminants. Samples collected using a hand auger were screened in smaller intervals and generally coincided with the required sampling interval (e.g., 0 to 0-5', 0.5-2', 2-2.5', 2.5-4', and 4-5'). Field screening results were recorded on the soil boring logs. Field screening results were used to aid in the selection of soil samples for laboratory analysis. The primary screening methods

include: (1) visual examination, (2) olfactory examination, and (3) headspace vapor screening for volatile organic compounds.

Visual screening included examining the soil samples for evidence of staining caused by petroleum-related compounds or other substances that may have caused staining of soils such as elemental sulfur or cyanide compounds. Headspace vapor screening was conducted and involved placing a soil sample in a plastic sealable bag allowing space for ambient air. The bag was sealed, labeled and then shaken gently to expose the soil to the air trapped in the container. The sealed bag was allowed to rest for a minimum of 5 minutes while the vapors equilibrated. If the ambient temperatures were 45 degrees or less, the bags were placed inside a warm vehicle prior to screening.

Vapors present within the sample bag's headspace were then measured by inserting the probe of a MiniRae 3000 portable volatile organic constituent (VOC) monitor in a small opening in the bag. The maximum value and the ambient air temperature were recorded on the field boring log for each sample. Field screening results and any conditions that were considered to be capable of influencing the results of the field screening were recorded on the field logs.

Decontamination Procedures

The drilling equipment (e.g., hollow-stem augers) was decontaminated between each borehole using a high-pressure potable water wash. The sampling equipment coming in direct contact with the samples (e.g., hand augers and split-spoon samplers) were decontaminated using a brush, as necessary, to remove larger particulate matter followed by a rinse with potable water, wash with non-phosphate detergent, rinse with potable water, and double rinse with deionized water.

Fluid Level Measurements

The depth to separate phase hydrocarbon, if present, and groundwater was measured prior to and after well development. Fluid levels were also measured prior to and after well purging. If a well was bailed down or bailed dry and required sampling at a later time, fluid level measurements were collected prior to sampling. A Geotech Interface Probe was used to measure fluid levels to 0.01 foot.

Well Development/Purging

The temporary monitoring wells were developed/purged using a new disposable bailer attached to the end of the clean rope. The permanent monitoring wells were purged using a new disposable bailer attached to the end of the clean rope. The groundwater and sediment removed from the wells were transported to the bundle cleaning pad in sealed 5-gallon buckets or in a 65-gallon horizontal leg polyethylene tank.

The purge volumes are calculated as follows:

Volume (gallons) = water column thickness (ft) x 3.14 x radius of well casing^2 (ft) x 7.48 (gals/ft).
The calculated purge volumes and actual volumes removed from each well are presented below.

Well (Date)	Water Column Thickness (ft)	Calculated Purge Volume (gallons) – 3 well volumes	Actual Purge Volume (gallons)
SL-1	5.64	2.88	4.00
SL-2	6.42	3.30	4.00
SL-3	6.73	3.43	3.75
SL-4	7.00	3.60	Bailed dry @ 3.50
SL-5	7.59	3.87	4.00
SL-6	7.49	3.81	4.00
SL-7	7.55	3.84	4.00
SL-8	7.14	3.63	4.00
MKTF-24	8.30	4.20	3.00
MKTF-25	6.70	3.41	1.10
MKTF-26	SPH (0.64 FEET)	NA	NA
MKTF-29	17.19	9.00	9.00
MKTF-30	7.12	3.60	3.50
MKTF-31	10.86	5.54	6.00
MKTF-40	10.58	5.40	6.00
0APIS-1	16.23	8.28	7.80

During well development and well purging the following information was recorded on a field worksheet:

- Time;
- Purge Volume;
- Temperature (^{o}F);
- Dissolved Oxygen (mg/L);
- Conductivity (uS/cm);
- Total Dissolved Solids (mg/L);
- pH;
- Oxidation-Reduction Potential (MV); and
- Turbidity (NTUs).

The field work sheets are included at the end of this appendix.

Sample Collection and Handling Procedures

Soil samples were collected using split-spoon samplers or directly from the auger bucket for borings completed with a hand auger. The selected portion of the sample interval was placed in pre-cleaned, laboratory-prepared sample containers for laboratory chemical analysis. Two soil samples were collected for VOC analysis in the following manner:

- Two sample aliquots were collected using a syringe for preservation with methanol. For the methanol preserved kits, 10 grams (10 cc) of soil was injected into each methanol vial using the syringe. The syringes were disposed after soil collection; and
- The third sample aliquot was placed in an 8-ounce glass jar, which was filled to the top to minimize any head space.

Two additional soil samples were collected in 8-ounce glass jars for semi-volatile and metals analyses.

Groundwater samples were collected using disposable bailers and clean rope. The water was immediately poured directly into clean laboratory supplied sample containers with the exception of samples collected for dissolved metals analyses. Samples specified for dissolved metals analyses were filtered in the field using a disposable 0.45 micron filter. A new filter and syringe were used for each sample.

All samples were immediately placed into an ice chest with ice. The samples were maintained in the custody of the sampler until the chain-of-custody form was completed and the ice chest was sealed for delivery to the laboratory.

Equipment Calibration

Soil vapor screening was conducted using a MiniRae 3000 portable VOC monitor. The instrument was calibrated at the beginning of each work day to a concentration of 100 ppm isobutylene.

The instruments used to measure groundwater stabilization parameters included an YSI Professional Series Data Logger and YSI Quatro Sonde. The calibration solutions used prior to using the water quality meter are as follows:

- 4.0 pH solution;
- 7.0 pH solution;
- 10.0 pH solution; and
- 1.413 uS/cm conductivity solution.

Management of Investigation Derived Waste

The drilling rig and drilling equipment were decontaminated on the bundle cleaning pad. The water is diverted to the Refinery's wastewater treatment system up-stream of the API Separator. The decontamination water generated from sampling equipment was collected in buckets and disposed at the bundle cleaning pad at the end of each day of sampling. All development/purge water was collected in five-gallon buckets or a 65-gallon horizontal leg polyethylene tank and disposed at the bundle cleaning pad.

Soil cuttings were placed into open top 55-gallon drums and were sealed when not in use. Each drum of soils was labeled and temporarily stored in a concrete curbed area pending waste characterization and disposal.

Appendix C

Soil Boring/Well Logs

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 14'
Saturation Depth	: 9'
Start Date/Time	: 10/28/19 - 11:15
Finish Date/Time	: 10/28/19 - 12:15

BORING NO. SL-1

(Sheet 1 of 1)

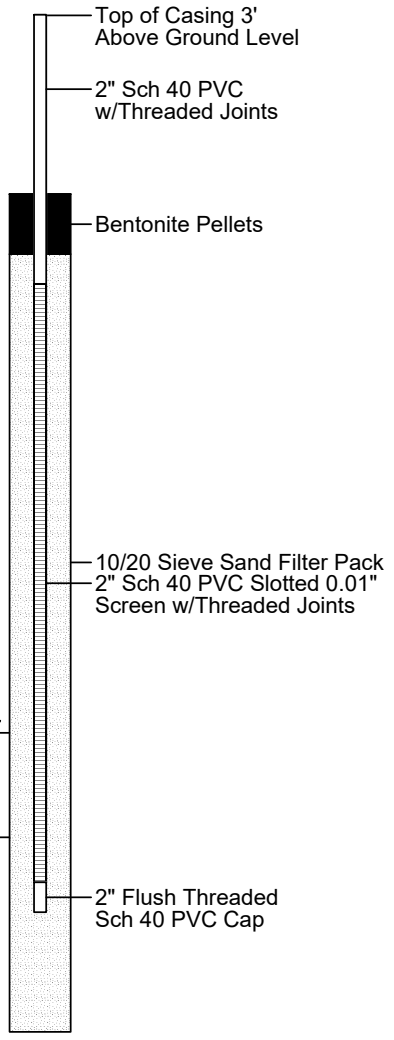
Northing	: 1634031.88
Easting	: 2545416.32
Ground Elevation	: 6912.71 ft. MSL
Comments	: Hand augered to 5'.

Saturation
▼ Saturation

Completion Results

Temporary Well SL-1

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	1.5			SM	100	X	CLAYEY SILT - low, soft, damp, brown, no odor, black discoloration.
1	8.1			CL	100		SILTY CLAY - low, soft, damp, brown, no odor, damper than above.
2	1341			CL	100	X	SILTY CLAY - Similar to above (STA), grayish brown, moist, hydrocarbon odor, black discoloration, trace sand/sand lenses.
3	353			CL	100		SILTY CLAY - STA.
4	30.6			CL	100		SILTY CLAY - low, firm, damp, brown, no odor.
5	8.9			CL	100		SANDY SILTY CLAY - low, firm to soft, damp, brown, no odor, fine grain sand in lenses.
6	8.6			CL	100	X	SILTY SANDY CLAY - STA, increase in sand content, damp to moist, no odor.
8	11.8	▼		CL	90		SILTY SANDY CLAY - STA, saturated clayey sand/sand at 9', more clayey at base, no odor.
10	-			SM	100		SILTY SAND - fine to medium, loose, saturated, brown, no odor
11	1.9			CL	100		CLAY/SILTY CLAY - moderate to low, firm, damp, brown, no odor, trace sand at top, bottom becomes drier and denser/crumbly.
13	1.8			MDST	50	X	MUDSTONE - very dense, dry to damp, brown, no odor.



DiSorbo Consulting, LLC

1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 16'
Saturation Depth	: 4', 8', 12'
Start Date/Time	: 10/29/19 - 08:00
Finish Date/Time	: 10/29/19 - 09:30

BORING NO. SL-2

(Sheet 1 of 1)

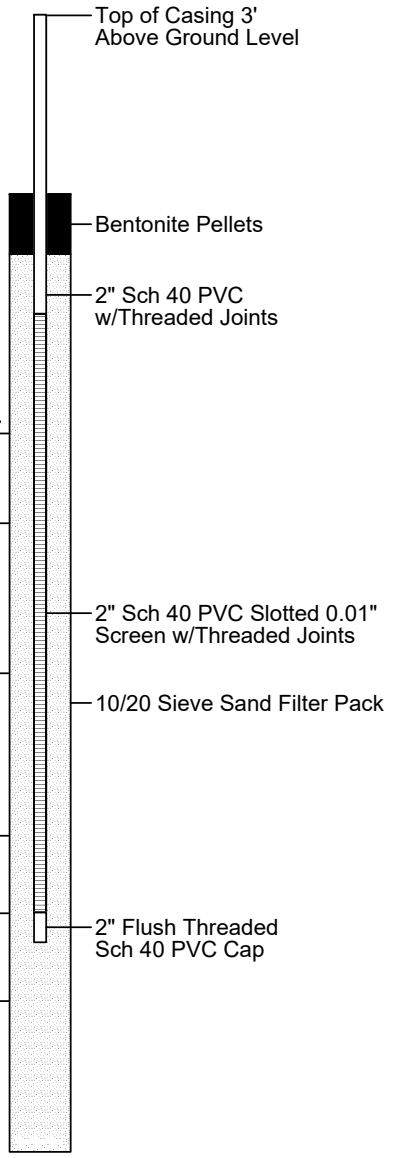
Northing	: 1634076.89
Easting	: 2545400.90
Ground Elevation	: 6910.74 ft. MSL
Comments	: Hand augered to 5'

Saturation
▼ Saturation

Completion Results

Temporary Well SL-2

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	0.4			ML	100		SILT - very fine, loose, dry to damp, brown, no odor, plant debris.
1	0.5			ML	100		CLAYEY SILT - Similar to above (STA) with clay.
2	23.8			CL	100		SILTY CLAY - low, soft, damp, brown, increase in moisture.
3	18.1			SC	100		CLAYEY SAND - very fine, compact, moist, no odor, brown.
4	7.7	▼		SC	100		CLAYEY SAND - STA, saturated, odor.
5	6.3			SC	100		CLAYEY SAND - STA, saturated, odor.
6				CH	100		CLAY - high, firm, damp, brown, no odor.
7	5.9			CH	80		CLAY - STA, no odor.
8		▼		SC/CL	80		CLAYEY SAND/SANDY CLAY - low, soft, damp to moist in sand seams, brown, no odor.
9	-			SC	90		CLAYEY SAND - medium to coarse sand with clay lenses, saturated, brown, no odor.
10	-			SP	100		SAND - medium to coarse, loose, brown, saturated, no odor.
11	5.9	▼		CH	100		CLAY - high, very stiff, damp, brown, no odor, calcareous nodules.
12	-			SC	100		CLAYEY SAND - medium to coarse, compact, moist to saturated, brown, no odor.
13	5.1			MDST	100		MUDSTONE - very dense, dry to damp, brown, no odor.
14	3.0			MDST	90		MUDSTONE - STA, no odor.
15							
16							
17							



DiSorbo Consulting, LLC

1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 16'
Saturation Depth	: 8'
Start Date/Time	: 10/29/19 - 12:00
Finish Date/Time	: 10/29/19 - 13:30

BORING NO. SL-3

(Sheet 1 of 1)

Northing	: 1634102.58
Easting	: 2545401.63
Ground Elevation	: 6910.01 ft. MSL
Comments	: Hand augered to 5'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	0.6			ML	-		SILT/CLAYEY SILT - very fine, loose, dry to damp, dark brown to brown, no odor.
1	2.1						
2	1.5			SM/CL	100		SILTY SAND/SANDY SILT - very fine, compact, damp, brown, no odor, moisture increases with depth.
3	2.9						
4	3.1			SM	100		SILTY SAND - Similar to above (STA), very moist to saturated at 5'.
5	-				0		No recovery.
6				CL	70		SANDY CLAY - moderate, firm, damp, brown, no odor, moist sand in seams saturated at base.
7	5.5						
8	5.4	▼		SC	100		CLAYEY SAND - fine grain, compact, brown, saturated, no odor.
9	5.5			CH	100		CLAY - high, very stiff, damp, brown, no odor, calcareous nodules.
10							CLAY - STA, soft at base, trace sand.
11	5.4			CH	100		
12				CH	50		CLAY - STA, saturated clayey sand lense at base.
13	4.9			MDST	50		MUDSTONE - very dense, dry to damp, brown, no odor.
14				MDST	50		MUDSTONE - STA.
15	4.8						
16							
17							

Saturation
▼ Saturation

Completion Results

Temporary Well SL-3

- Top of Casing 3' Above Ground Level
- Bentonite Pellets
- 2" Sch 40 PVC w/Threaded Joints
- 10/20 Sieve Sand Filter Pack
- 2" Sch 40 PVC Slotted 0.01" Screen w/Threaded Joints
- 2" Flush Threaded Sch 40 PVC Cap

DiSorbo Consulting, LLC

1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 16'
Saturation Depth	: 4' & 8'
Start Date/Time	: 10/30/19 - 09:00
Finish Date/Time	: 10/30/19 - 10:45

BORING NO. SL-4

(Sheet 1 of 1)

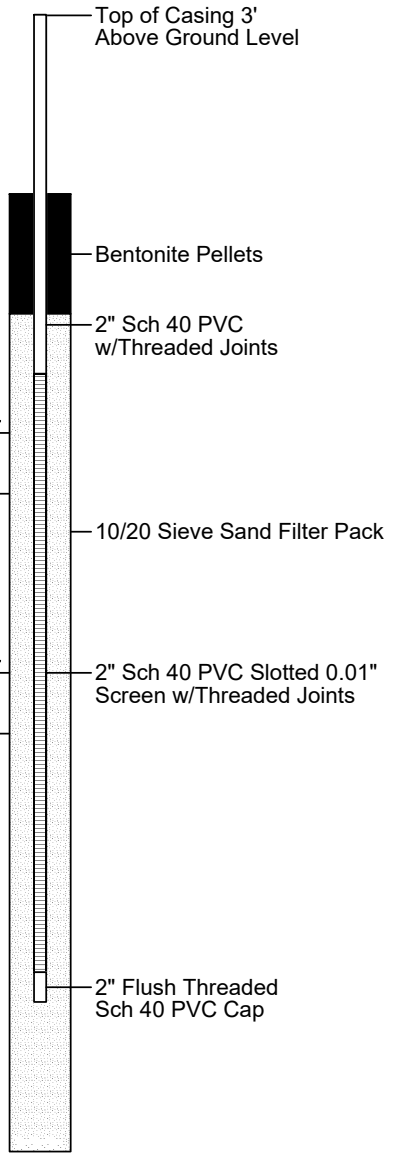
Northing	: 1634097.56
Easting	: 2545363.76
Ground Elevation	: 6909.37 ft. MSL
Comments	: Hand augered to 5'

Saturation
▼ Saturation

Completion Results

Temporary Well SL-4

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	0.2			ML	100		SILT - very fine, loose, dry, brown, no odor.
1	0.2			SM	100		SILTY SAND - very fine, compact, damp, brown, no odor, moisture increases with depth.
2	0.2						
3	0.4						
4	0.5	▼		SM	100		SILTY SAND - Similar to above (STA), very moist to saturated, no odor.
5	1.5			CL	100		SANDY CLAY - moderate, firm, damp, brown, no odor, moist sand in seams.
6	1.4			CL	100		SANDY CLAY - STA, CH clay at base, saturated sand at the base.
7							
8	-	▼		SC	70		CLAYEY SAND - fine to medium, loose, saturated, brown, no odor.
9	1.3			CH	100		CLAY - high, very stiff, damp, brown, no odor.
10	1.1			CH	100		CLAY - STA.
11							
12	0.9			CH	50		CLAY - STA.
13				MDST	50		MUDSTONE - very dense, dry, brown, no odor.
14	0.8			MDST	80		MUDSTONE - STA, no odor.
15							
16							
17							



DiSorbo Consulting, LLC

1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 14'
Saturation Depth	: 4'
Start Date/Time	: 10/30/19 - 12:05
Finish Date/Time	: 10/30/19 - 13:40

BORING NO. SL-5

(Sheet 1 of 1)

Northing	: 1634087.00
Easting	: 2545317.94
Ground Elevation	: 6909.72 ft. MSL
Comments	: Hand augered to 5'

Saturation
▼ Saturation

Completion Results

Temporary Well SL-5

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	1.3			CL	100		SANDY CLAY - low, firm, damp, brown, no odor, rusty brown spots.
1	1.4						
2	1.6			CL	100		SANDY CLAY - Similar to above (STA), damper, becomes moist at base.
3	1.5						
4	2.9	▼		SC	100		CLAYEY SAND - fine to medium, compact, brown, black and gray sand grains, very moist to saturated.
5	10.1			SC	5		CLAYEY SAND - STA, saturated, poor recovery.
6							
7	58			CL	50		SANDY CLAY - moderate, firm, damp, brown, no odor, moist sand in seams, moist at base.
8							
9	3.1			CH	90		CLAY - high, very stiff, damp, brown, no odor.
10							
11	0.5			MDST	60		MUDSTONE - dense, dry, brown, no odor.
12							
13	0.3			MDST	50		MUDSTONE - STA, no odor.
14							
15							
16							
17							

Top of Casing 3' Above Ground Level
Bentonite Pellets
2" Sch 40 PVC w/Threaded Joints
10/20 Sieve Sand Filter Pack
2" Sch 40 PVC Slotted 0.01" Screen w/Threaded Joints
2" Flush Threaded Sch 40 PVC Cap

DiSorbo Consulting, LLC

1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 14'
Saturation Depth	: 4'
Start Date/Time	: 10/31/19 - 09:00
Finish Date/Time	: 10/31/19 - 10:45

BORING NO. SL-6

(Sheet 1 of 1)

Northing	: 1634094.95
Easting	: 2545346.84
Ground Elevation	: 6909.54 ft. MSL
Comments	: Hand augered to 5'

Saturation
▼ Saturation

Completion Results

Temporary Well SL-6

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	1.9			CL	100		SANDY CLAY - low, firm, damp, brown, no odor.
1	1.6						
2	2.1			CL	100		SANDY CLAY - Similar to above (STA), damper, becomes moist at base.
3	1.2						
4	1.9	▼		SC	100		CLAYEY SAND - fine to medium, compact, brown, moist to saturated, no odor.
5	2.0			SC	90		CLAYEY SAND - STA, moist to saturated in lenses/seams, no odor.
6							
7	3.2			SC	80		CLAYEY SAND - STA, moist to saturated in lenses/seams.
8	2.7			SC	100		CLAYEY SAND - fine to medium, compact, saturated, brown.
9	3.2			CH	100		CLAY - high, stiff, damp, brown, no odor, gravel present.
10							
11	3.1			CH	100		CLAY - STA, very stiff.
12				CH	100		CLAY - STA, gravelly.
13	1.1			MDST	100		MUDSTONE - very dense, dry, brown, no odor.
14							
15							
16							
17							

Top of Casing 3' Above Ground Level
Bentonite Pellets
2" Sch 40 PVC w/Threaded Joints
10/20 Sieve Sand Filter Pack
2" Sch 40 PVC Slotted 0.01" Screen w/Threaded Joints
2" Flush Threaded Sch 40 PVC Cap

DiSorbo Consulting, LLC

1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 12'
Saturation Depth	: 4' & 6'
Start Date/Time	: 11/4/19 - 08:05
Finish Date/Time	: 11/4/19 - 09:25

BORING NO. SL-7

(Sheet 1 of 1)

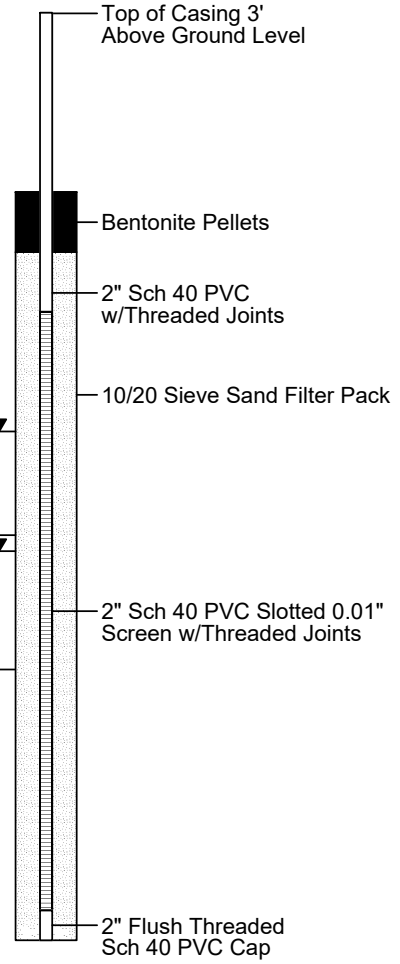
Northing	: 1634047.08
Easting	: 2545314.94
Ground Elevation	: 6908.81 ft. MSL
Comments	: Hand augered to 5'.

Saturation
▼ Saturation

Completion Results

Temporary Well SL-7

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	3.8			CL	100		SILTY CLAY - low, soft, damp, light brown with rusty brown discoloration, no odor.
1	5.0			CL	100		SILTY CLAY - low, soft, damp, brown, faint odor.
2	7.8			CL	100		SILTY CLAY - Similar to above (STA), black, odor, damp.
3	46.1			CL	100		SILTY CLAY - STA, brown, odor, damp to moist.
4	200	▼		SM	100		SILTY SAND - fine grain, loose, brown, saturated, odor.
5	86.6			SM	100		SILTY SAND - STA, saturated, odor, fine to medium.
6		▼		CL	100		SILTY CLAY - low, soft, damp, brown, faint odor.
7	-			CL/SC	50		SANDY CLAY/CLAYEY SAND - fine to medium, compact, moist to saturated in sand seams, brown, no odor.
8	7.7			CL	70		SANDY CLAY - STA, moist.
9	4.1			CH	70		CLAY - high, firm, damp, brown, no odor, mudstone at base, dense.
10							
11	3.3			MDST	60		MUDSTONE - very dense, dry, brown, no odor.
12							
13							
14							
15							
16							
17							



1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

DiSorbo Consulting, LLC

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

DiSorbo
Environmental Consulting Firm

Marathon Petroleum Company, LP
Gallup Refinery - Sanitary Sewage Lagoon
WEST19038-01

Geologist	: Tracy Payne
Drilling Company	: Terracon
Driller	: Cothron
Drilling Rig	: CME 55 Track Rig
Drilling Method	: Hollow-Stem Augers 8"
Sampling Method	: 2' Split Spoon
Total Depth	: 14'
Saturation Depth	: 4'
Start Date/Time	: 11/4/19 - 10:50
Finish Date/Time	: 11/4/19 - 12:15

BORING NO. SL-8

(Sheet 1 of 1)

Northing	: 1634052.67
Easting	: 2545350.02
Ground Elevation	: 6909.67 ft. MSL
Comments	: Hand augered to 5'.

Saturation
▼ Saturation

Completion Results

Temporary Well SL-8

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	DESCRIPTION
0	12.7			CL	100		SILTY CLAY - low, soft, damp, light brown, odor.
1	5.9						
2	8.3			CL	100		SILTY CLAY - Similar to above (STA), dark brown to black, odor, damp.
3	6.1			CL	100		SILTY CLAY - STA, black to dark brown, odor, damp to moist.
4	6.9	▼		CL	100		SANDY CLAY - low, soft, moist to saturated, brown, odor.
5	18.2			SC	40		CLAYEY SAND - fine to medium sand in lenses, moist to saturated, faint odor, dark brown to black.
6							
7	27.9			SC	80		CLAYEY SAND - STA, brown, no odor, moist to saturated.
8	7.5			SC	80		CLAYEY SAND - STA, moist to saturated.
9	4.6			CH	80		CLAY - high, very stiff, damp, brown, no odor.
10	5.1			CH	80		CLAY - STA.
11	5.5			MDST	80		MUDSTONE - dense, dry, brown, no odor.
12				MDST	90		MUDSTONE - STA, very dense.
13	4.5						
14							
15							
16							
17							

Top of Casing 3' Above Ground Level
Bentonite Pellets
2" Sch 40 PVC w/Threaded Joints
10/20 Sieve Sand Filter Pack
2" Sch 40 PVC Slotted 0.01" Screen w/Threaded Joints
2" Flush Threaded Sch 40 PVC Cap

DiSorbo Consulting, LLC

1001 Louisiana Street, Suite 3250
Houston, Texas 77002
713-955-1230

8501 N. MoPac Expy, Suite 300
Austin, Texas 78759
512-693-4190

Appendix D

Quality Assurance/Quality Control Review

DATA VALIDATION INTRODUCTION

This summary presents data verification results for soil and groundwater samples collected from soil boring and monitoring wells installed at the Sanitary Lagoon at the Gallup Refinery. The data review was performed in accordance with Provision IV.J.3.b (Review of Field and Laboratory QA/QC Data) of the RCRA Permit issued by NMED in October 2013, USEPA Functional Guidelines for Organic and Inorganic Data Review, and quality assurance and control parameters set by the project laboratory Hall Environmental Analysis Laboratory, Inc.

A total of 33 soil samples and 15 groundwater samples (excluding QA samples) were collected from October 28, 2019 through November 19, 2019 in accordance with the *Investigation Work Plan Sanitary Lagoon* (DiSorbo, 2019). Soil and/or groundwater samples were submitted to Hall Environmental Analysis Laboratory for the following parameters in accordance with the approved Work Plan:

- volatile organic compounds (VOCs) by USEPA Method 8260B;
- semi-volatile organic compounds (SVOCs) by USEPA Method 8270;
- Gasoline, diesel, and motor oil range organics by SW-846 Method 8015B;
- Total recoverable and dissolved metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver, vanadium, and zinc) by EPA Method 200.7;
- Hexavalent chromium by SW-846 Method 7199;
- cyanide by SW-846 method 9012;
- mercury by EPA Method 7470;
- fecal coliform and E. coli by methods SM9223B and A9221E;
- biochemical oxygen demand by method M5210B;
- chemical oxygen demand by method H8000; and
- sulfate, chloride, fluoride, nitrate, and nitrite by method E300.

Additionally, 30 quality assurance samples consisting of trip blanks, methanol blanks, equipment rinsate blanks, and field duplicates were collected and analyzed as part of the investigation activities. Table A-1 presents a summary of the field sample identifications, laboratory sample identifications, and sample collection dates.

QUALITY CONTROL PARAMETERS REVIEWED

Sample results were subject to a Level II data review that includes an evaluation of the following quality control (QC) parameters:

- Chain-of-Custody;
- Sample preservation and temperature upon laboratory receipt
- Holding times;
- Blank contamination (method blanks, trip blanks, methanol blanks, and equipment rinsate blanks);
- Surrogate recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD;
- Duplicates (field duplicate, laboratory duplicate); and
- Other Applicable QC Parameters.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives are defined below:

J+	The analyte was positively identified; however, the result should be considered an estimated value with a potential high bias.
J-	The analyte was positively identified; however, the result should be considered an estimated value with a potential low bias.
UJ	The reporting limit for a constituent that was not detected is considered an estimated value.
R	Quality control indicates that the data is not usable.

Results qualified as "J+", "J-", or "UJ" are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, per EPA guidelines. Results for the performance monitoring events that required qualification based on the data verification are summarized in Table A-2.

CHAIN-OF-CUSTODY

The chain-of-custody documentation associated with project samples was found to be complete. Chain-of-custodies included sample identifications, date and time of collection, requested parameters, and relinquished/received signatures.

SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples were received preserved and intact by Hall Environmental Laboratories; Inc. Samples were received by the laboratory at a temperature of 6.0 degrees Celsius or lower with the exception of samples in lab reports 1911107. These soil samples were placed on ice immediately after collection and delivered to the lab the same afternoon, thus the samples upon receipt had not yet chilled to below 6.0 degrees Celsius. The associated samples are not qualified.

HOLDING TIMES

All samples were extracted and analyzed within method-specified holding time limits with the exception of the biochemical oxygen demand (BOD) analyses in lab report 1911589 and 1911594, which could not be reported due to a lab error. Samples with an H flag in lab report 1911867 were analyzed for BOD past the holding times and are qualified as J- in Table A-2.

BLANK CONTAMINATION

Method Blank

Method blanks were analyzed at the appropriate frequency. Target compounds were not detected in the method blanks, with the exception of the following:

Lab Report 1910E91

- Azobenzene, benzyl alcohol, bis(2-ethylhexyl)phthalate, di-n-butyl phthalate, diethyl phthalate, 3-nitroaniline, and phenol were detected at low concentrations in the method blank for batch 48536. However, none of these constituents were detected in the associated samples and thus none are qualified.
- Benzyl alcohol, bis(2-ethylhexyl)phthalate, 4-chloro-3-methylphenol, di-n-butyl phthalate, and diethyl phthalate were detected at low concentrations in the method blank for batch 48505 in lab report 190E91. However, none of these constituents were detected in the associated samples and thus none are qualified.
- In batch 48626, cadmium, manganese, nickel and zinc were detected at very low concentrations in comparison to the reported values in the associated samples and none of the results are qualified.
- In batch 48511, manganese was detected at very low concentrations in the method blank, but was not detected in the associated sample and no qualification is required.

Lab Report 1910F75

- Azobenzene, benzyl alcohol, bis(2-ethylhexyl)phthalate, di-n-butyl phthalate, diethyl phthalate, 3-nitroaniline, and phenol were detected at low concentrations in the method blank for batch 48536. However, none of these constituents were detected in the associated samples and thus none are qualified.
- In batch 48626, cadmium, manganese, nickel and zinc were detected at very low concentrations in comparison to the reported values in the associated samples and none of the results are qualified.
- In batch 48558, barium, cadmium, and manganese were detected at very low concentrations in comparison to the reported values in the associated samples and none of the results are qualified.
- In batch 48560, vanadium was detected at very low concentrations in the method blank, but was not detected in the associated sample and no qualification is required.

Lab Report 1910G04

- Di-n-butyl phthalate was detected in the method blank for batch 48625 and also in related sample SL-5 (6-8'), which is qualified as J+ in Table A-2.
- Mercury was detected in the method blank in batch 48711 and also in all soil samples collected at boring locations SL-4 and SL-5. The affected samples are qualified as J+ in Table A-2.
- In batch 48626, cadmium, manganese, nickel and zinc were detected at very low concentrations in comparison to the reported values in the associated samples and none of the results are qualified.
- In batch 48604, cadmium, iron, lead, manganese, and nickel were detected at very low concentrations in comparison to the reported values in the associated samples and none of the results are qualified.
- In batch 48560, vanadium was detected at very low concentrations in the method blank, but was not detected in the associated sample and no qualification is required.

Lab Report 1910G20

- Bis(2-ethylhexyl)phthalate was detected at a low concentration in the method blank for batch 48729. However, it was detected in the associated samples and thus none are qualified.
- In batch 48604, cadmium, iron, lead, manganese, and nickel were detected at very low concentrations in comparison to the reported values in the associated samples and none of the results are qualified.

- In batch 48560, vanadium was detected at very low concentrations in the method blank, but was not detected in the associated sample and no qualification is required.

Lab Report 1911107

- Di-n-butyl phthalate was detected in the method blank for batch 48625, but none of the associated samples had detected results, thus no qualification was required.
- Mercury was detected in the method blank in batch 48884 and also in all soil samples collected at boring locations SL-4 and SL-5. The affected samples are qualified as J+ in Table A-2.
- In batch 48651, chromium, iron, and manganese, were detected at very low concentrations in comparison to the reported values in the associated samples and none of the results are qualified. Cadmium and silver were detected in the method blank, but none of the associated samples, thus none are qualified.
- In batch 48678, iron and silver were detected at very low concentrations in the method blank and at similar concentrations in the related sample (EB110419) that is qualified as J+ in Table A-2.

Lab Report 1911589

- Nickel was detected in the method blank in batch 48803 and also in all groundwater samples collected at locations SL-5, SL-6, SL-7, and SL-8. The affected samples are qualified as J+ in Table A-2. Iron and manganese were also detected in a method blank, but at very low concentrations in comparison to site samples and the data are not qualified.

Lab Report 1911594

- Iron and manganese were also detected in the method blank for batch 48856, but at very low concentrations in comparison to site samples and the data are not qualified.

Trip Blank

Trip blanks were analyzed at the appropriate frequency as specified in the Permit. Target compounds were not detected in the trip blanks.

Equipment Rinsate Blank

Equipment rinsate blanks were collected as specified in the Sanitary Lagoon Investigation Work Plan and the Permit. The following constituents were detected in equipment rinsate blanks.

- In sample EB102819 (1910E91-005) iron was detected at 0.0095J mg/l. No data is qualified based on the very low detection in comparison to site concentrations.
- In sample EB102919 (1910F75-012), sulfate was detected at a low concentration of 0.43J mg/l and the associated samples are not qualified due being reported at much higher concentrations in the site data.
- In sample EB102919 (1910F75-012), antimony was detected at a low concentration of 0.013J mg/l, but it was not detected in associated site samples. Chromium, iron and manganese were detected at very low concentrations in the blank in comparison to site concentrations and the associated samples are not qualified.
- In sample EB103019 (1910G04-011), chloride, iron and lead were detected at low concentrations and the associated samples are not qualified due being reported at much higher concentrations in the site data.
- In sample EB103119 (1910G20-005), beryllium, iron, lead, and vanadium were detected at low concentrations; however, the associated samples are not qualified due being reported at much higher concentrations in the site data.
- In sample EB110419 (1911107-011), nitrate, beryllium, chromium, iron, manganese, and vanadium were detected at low concentrations; however, the associated samples are not qualified due being reported at much higher concentrations in the site data. Cadmium and silver were detected at very low concentrations and were not detected in any of the related samples; thus, no data is qualified.
- In samples EB01 (1911594-005) and EB02 (1911589-005), iron, manganese, and zinc were detected at low concentrations; however, the associated samples are not qualified due being reported at much higher concentrations in the site data. Acetone was detected at a very low concentration, but was not detected in any of the related samples, thus no data is qualified.
- In sample EB01 (1911867-005), nitrite was detected at a low concentration, but it was not detected in any of the related samples, thus no data is qualified.

Common Laboratory Contaminants

Per USEPA guidelines, common laboratory contaminants for VOC analysis are acetone, 2-butanone (MEK), cyclohexane, chloromethane, and methylene chloride. Common laboratory contaminants for SVOC analysis include phthalates. Data qualification was required for samples with 2-butanone since there were detection in blanks and field analytical results were detected at concentrations less than 10 times the blank concentration in field samples. See Table A-2 for qualified data.

Methanol Blanks

Methanol Blanks provided by the laboratory were analyzed for VOCs. There were no analytes detected in the methanol blanks above the respective laboratory detection limits with the following exceptions.

- In sample MeOH Blank (1910F75-011), 2-butanone was detected at 0.16 mg/kg and it was detected at lower concentrations in five soil samples collected at locations SL-2 and SL-3. These results are qualified as J+ in Table A-2.
- In sample MeOH Blank (1910G04-010), 2-butanone was detected at 0.073J mg/kg and it was detected at lower concentrations in four soil samples collected at locations SL-4 and SL-5. These results are qualified as J+ in Table A-2. Methylene chloride was detected at a low concentration, but was not detected in any of the associated samples, thus no data is qualified.
- In sample MeOH Blank (1911107-010), 2-butanone was detected at 0.065J mg/kg and it was detected at lower concentrations in six soil samples collected at locations SL-7 and SL-8. These results are qualified as J+ in Table A-2

SURROGATE RECOVERY

Surrogate recoveries for the organic and inorganic analyses were performed at the required frequency and were within laboratory acceptance limits, with the following exceptions:

Lab Report 1910E91

- Surrogate recoveries for the semi-volatiles in sample SL-1 (0-0.5') (1910E91-001) were out of range due to sample dilution; however, the associated QA/QC samples were within the required ranges. The results were non-detect and are not qualified.
- Surrogate recovery for gasoline range organics was high for sample SL-1 (2-2.5') (1910E91-002) due to sample dilution; however, the associated QA/QC samples were within the required ranges. The result is not qualified. Only one of the six surrogates was slightly high for the semi-volatile analyses in this sample and the results are not qualified.

Lab Report 1910F75

- Surrogate recoveries for the semi-volatiles in sample SL-2 (0-0.5') (1910F75-001) and the associated field duplicate DUP01 (1910F75-010) were out of range due to sample dilution;

however, the associated QA/QC samples were within the required ranges. The results were non-detect and are not qualified.

- Surrogate recovery for gasoline range / diesel range organics was low for sample SL-3 (0-0.5') (1910E91-002) and DUP01 (1910F75-010) due to sample dilution; however, the associated QA/QC samples were within the required ranges. The result is not qualified.

Lab Report 1910G04

- Surrogate recoveries for the semi-volatiles in sample SL-4 (0-0.5') (1910G04-001), SL-5 (0-0.5') (1910G04-005), and four of the surrogates for sample SL-4 (2-2.5') (1910G04-002) were out of range due to sample dilution; however, the associated QA/QC samples were within the required ranges. The results were non-detect and are not qualified.

Lab Report 1911107

- The surrogate recovery for gasoline range / diesel range organics was low for sample SL-8 (0-0.5') (1911107-005) due to sample dilution; however, the associated QA/QC samples were within the required ranges. The result is not qualified.
- Surrogate recoveries for the semi-volatiles in sample SL-8 (0-0.5') (1911107-005) were out of range due to sample dilution; however, the associated QA/QC samples were within the required ranges. The results were non-detect and are not qualified.

LCS RECOVERY AND RELATIVE PERCENT DIFFERENCE

Laboratory control samples (LCS)/LCS duplicates were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified "J+" to account for a potential high bias.
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then the analyte results in the associated analytical batch were qualified ("UJ" for non-detects and "J-" for detected results) to account for a potential low bias.

LCS/LCSD percent recoveries and relative percent differences (RPDs) were within acceptance limits and no qualification was required, except as noted below:

Lab Report 1910E91

- LCS recovery RPDs for two semivolatiles (2-chlorophenol and n-nitrosodi-n-propylamine) in batch 48505 was above the acceptance limit. The actual recovery percentages in both the LCS and LCSD were within range and the related samples are not qualified.

MS/MSD RECOVERY AND RELATIVE PERCENT DIFFERENCE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples were performed at the required frequency and were evaluated by the following criteria:

- If the MS or MSD recovery for an analyte was above acceptance limits but the analyte was not detected in the associated analytical batch, then data qualification was not required.
- Low MS/MSD recoveries for organic or inorganic parameters result in sample qualification of the associated analytical batch with a "UJ" if the constituent was not detected;
- If the MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, then analyte results were qualified "J+" to account for a potential high bias.
- Low MS/MSD recoveries for organic or inorganic parameters result in sample qualification of the associated analytical batch with a "J-".
- Results were not qualified based on non-project specific MS/MSD (i.e., batch QC) recoveries.

MS/MSD percent recoveries and RPDs were within acceptance limits except for the following:

Lab Report 1910E91

- The MS recovery exceeded for chloride and fluoride and the MSD recovery equaled the upper limit for fluoride in batch 48614. The associated results are flagged as J+ in Table A-2.

- The MS recovery and some MS recoveries were below the recovery limits for antimony, arsenic, barium, lead, manganese, selenium, silver, and zinc in batch 48626. The affected samples are qualified as J- or U-, as appropriate in Table A-2 based whether a particular constituent was detected in the related sample.

Lab Report 1910F75

- The MS and MSD recoveries for diesel range organics significantly exceeded the limits in batch 48544. The associated samples are qualified as J+ in Table A-2.

- The MS and/or MSD recoveries were below the recovery limits for antimony, barium, manganese, silver, and zinc in batch 48558. The affected samples are qualified as J- or U-, as appropriate in Table A-2 based whether a particular constituent was detected in the related sample. All results for antimony and silver are non-detect and thus are not qualified.

Lab Report 1910G20

- In preparation batch 48604, the MS and MSD recoveries for antimony were low, while for barium both were high. The associated results are flagged as U- or J+ in Table A-2.

Lab Report 1911107

- The MS and MSD recoveries were low for silver and high for manganese in batch #48651 and the associated detected results for manganese are flagged as J+ and the non-detect results are flagged as UJ in Table A-2. The MS recovery was high barium, while the MSD recovery was low for barium in this same laboratory bath and the results are flagged as "J" in Table A-2. Both the MS and MSD recoveries were low for antimony and selenium and the non-detect results are flagged as UJ.

DUPLICATES

Field Duplicates

Field duplicates were collected at a rate as stated in the approved Investigation Work Plan. The RPDs between the field duplicate and its associated sample were calculated and are presented in Table A-3. The field duplicates were evaluated by the following criteria:

- If an analyte was detected at a concentration greater than five times the method reporting limit, the RPD should be less than 35 percent for soil and 25 percent for ground water samples.
- If an analyte was detected at a concentration that is less than five times the method reporting limit, then the difference between the sample and the field duplicate should not exceed the method reporting limit.

- Duplicate RPDs are calculated by dividing the difference of the concentrations by the average of the concentrations.

Field duplicate RPDs were within acceptance limits. See Tables A-3 for a field duplicate summary.

COMPLETENESS SUMMARY

The following equation was used to calculate the technical completeness:

$$\% \text{ Technical Completeness} = \left(\frac{\text{Number of usable results}}{\text{Number of reported results}}\right) \times 100$$

The technical completeness attained for Investigation activities was 100 percent. The completeness results are provided in Table A-4. The analytical results for the required analytes per the approved Work Plan were considered usable for the intended purposes and the project DQOs have been met.

Table A-1
Sample Identification
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
SL-1 (0-0.5')	1910E24-001	10/28/2019	SO
SL-1 (12-14')	1910E24-004	10/28/2019	SO
SL-1 (2-2.5')	1910E24-002	10/28/2019	SO
SL-1 (6-8')	1910E24-003	10/28/2019	SO
EB102819B	1910E24-005	10/28/2019	EB
SL-1 (0-0.5')	1910e91-001	10/28/2019	SO
SL-1 (12-14')	1910e91-004	10/28/2019	SO
SL-1 (2-2.5')	1910e91-002	10/28/2019	SO
SL-1 (6-8')	1910e91-003	10/28/2019	SO
EB102819	1910e91-005	10/28/2019	EB
SL-2 (0-0.5')	1910F65-001	10/29/2019	SO
SL-2 (14-16')	1910F65-005	10/29/2019	SO
SL-2 (2.5-4')	1910F65-003	10/29/2019	SO
SL-2 (2-25')	1910F65-002	10/29/2019	SO
SL-2 (6-8')	1910F65-004	10/29/2019	SO
SL-3 (0-0.5')	1910F65-006	10/29/2019	SO
SL-3 (14-16')	1910F65-009	10/29/2019	SO
SL-3 (2-2.5')	1910F65-007	10/29/2019	SO
SL-3 (6-8')	1910F65-008	10/29/2019	SO
DUP 01	1910F65-010	10/29/2019	FD
EB102919B	1910F65-011	10/29/2019	EB
DUP 02	1910F71-009	10/30/2019	FD
EB103019	1910F71-010	10/30/2019	EB
SL-4 (0-0.5')	1910F71-001	10/30/2019	SO
SL-4 (14-16')	1910F71-004	10/30/2019	SO
SL-4 (2-2.5')	1910F71-002	10/30/2019	SO
SL-4 (6-8')	1910F71-003	10/30/2019	SO
SL-5 (0-0.5')	1910F71-005	10/30/2019	SO
SL-5 (12-14')	1910F71-008	10/30/2019	SO
SL-5 (2-2.5')	1910F71-007	10/30/2019	SO
SL-5 (6-8')	1910F71-006	10/30/2019	SO
DUP01	1910f75-010	10/29/2019	FD
MeOH Blank	1910f75-011	10/29/2019	MB
EB102919	1910f75-012	10/29/2019	EB
SL-2 (0-0.5')	1910f75-001	10/29/2019	SO
SL2 (14-16')	1910f75-005	10/29/2019	SO
SL-2 (2.5-4')	1910f75-003	10/29/2019	SO
SL-2 (2-2.5')	1910f75-002	10/29/2019	SO
SL-2 (6-8')	1910f75-004	10/29/2019	SO
SL-3 (0-0.5')	1910f75-006	10/29/2019	SO
SL-3 (14-16')	1910f75-009	10/29/2019	SO
SL-3 (2-2.5')	1910f75-007	10/29/2019	SO
SL-3 (6-8')	1910f75-008	10/29/2019	SO
DUP02	1910G04-009	10/30/2019	FD
MeOH Blank	1910g04-010	10/30/2019	MB
EB103019	1910G04-011	10/30/2019	EB
SL-4 (0-0.5')	1910G04-001	10/30/2019	SO
SL-4 (14-16')	1910G04-004	10/30/2019	SO
SL-4 (2-2.5')	1910G04-002	10/30/2019	SO
SL-4 (6-8')	1910G04-003	10/30/2019	SO
SL-5 (0-0.5')	1910G04-005	10/30/2019	SO
SL-5 (12-14')	1910G04-008	10/30/2019	SO

Table A-1
Sample Identification
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
SL-5 (2-2.5')	1910G04-006	10/30/2019	SO
SL-5 (6-8')	1910G04-007	10/30/2019	SO
EB103119	1910g20-005	10/31/2019	EB
SL-6 (0-0.5')	1910g20-001	10/31/2019	SO
SL-6 (12-14')	1910g20-004	10/31/2019	SO
SL-6 (2-2.5')	1910g20-002	10/31/2019	SO
SL-6 (6-8')	1910g20-003	10/31/2019	SO
EB103119B	1911005-005	10/31/2019	EB
SL-6 (0-0.5')	1911005-001	10/31/2019	SO
SL-6 (12-14')	1911005-004	10/31/2019	SO
SL-6 (2-2.5')	1911005-002	10/31/2019	SO
SL-6 (6-8')	1911005-003	10/31/2019	SO
DUP03	1911103-009	11/4/2019	FD
EB110419B	1911103-010	11/4/2019	EB
SL-7 (0-0.5')	1911103-001	11/4/2019	SO
SL-7 (10-12')	1911103-004	11/4/2019	SO
SL-7 (2.5-4')	1911103-003	11/4/2019	SO
SL-7 (2-2.5')	1911103-002	11/4/2019	SO
SL-8 (0-0.5')	1911103-005	11/4/2019	SO
SL-8 (12-14')	1911103-008	11/4/2019	SO
SL-8 (2.5-4')	1911103-007	11/4/2019	SO
SL-8 (2-2.5')	1911103-006	11/4/2019	SO
DUP03	1911107-009	11/4/2019	FD
MeOH Blank	1911107-010	11/4/2019	MB
EB110419	1911107-011	11/4/2019	EB
SL-7 (0-0.5')	1911107-001	11/4/2019	SO
SL-7 (10-12')	1911107-004	11/4/2019	SO
SL-7 (2.5-4')	1911107-003	11/4/2019	SO
SL-7 (2-2.5')	1911107-002	11/4/2019	SO
SL-8 (0-0.5')	1911107-005	11/4/2019	SO
SL-8 (12-14')	1911107-008	11/4/2019	SO
SL-8 (2.5-4')	1911107-007	11/4/2019	SO
SL-8 (2-2.5')	1911107-006	11/4/2019	SO
DUP01	1911589-006	11/13/2019	FD
EB02	1911589-005	11/13/2019	EB
SL-5-GW	1911589-001	11/13/2019	GW
SL-6-GW	1911589-002	11/13/2019	GW
SL-7-GW	1911589-003	11/13/2019	GW
SL-8-GW	1911589-004	11/13/2019	GW
Trip Blank-1	1911589-007	11/13/2019	TB
Trip Blank-2	1911589-008	11/13/2019	TB
Trip Blank-3	1911589-009	11/13/2019	TB
EB01	1911594-005	11/12/2019	EB
SL-1-GW	1911594-001	11/12/2019	GW
SL-2-GW	1911594-002	11/12/2019	GW
SL-3-GW	1911594-003	11/12/2019	GW
SL-4-GW	1911594-004	11/12/2019	GW
Trip Blank-1	1911594-006	11/12/2019	TB
Trip Blank-2	1911594-007	11/12/2019	TB
DUP	1911867-006	11/18/2019	FD
EB01	1911867-005	11/18/2019	EB
MKTF-25	1911867-001	11/18/2019	GW

Table A-1
Sample Identification
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
MKTF-29	1911867-002	11/18/2019	GW
MKTF-30	1911867-003	11/18/2019	GW
MKTF-31	1911867-004	11/18/2019	GW
EB02	1911960-004	11/19/2019	EB
MKTF-24	1911960-002	11/19/2019	GW
MKTF-40	1911960-003	11/19/2019	GW
OAPIS-1	1911960-001	11/19/2019	GW

SO = Soil Sample
FD = Field Duplicate
TB = Trip Blank
EB = Equipment Blank
GW = Groundwater

Table A-2
Qualified Data
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
MKTF-30	11/18/2019	Biochemical Oxygen Demand	2	mg/l	water	j-	qualified as potentially biased low due to being analyzed past holding time
MKTF-31	11/18/2019	Biochemical Oxygen Demand	2	mg/l	water	j-	qualified as potentially biased low due to being analyzed past holding time
S-5 (6-8')	10/30/19	Di-n-butyl phthalate	0.25	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-4 (0-0.5')	10/30/19	mercury	0.2	mg/kg	soil	J+	Analyte was detected in method blank
SL-4 (14-16')	10/30/19	mercury	0.0037	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-4 (2-2.5')	10/30/19	mercury	0.029	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-4 (6-8')	10/30/19	mercury	0.0057	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-5 (0-0.5')	10/30/19	mercury	0.039	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-5 (12-14')	10/30/19	mercury	0.0029	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-5 (2-2.5')	10/30/19	mercury	0.0064	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-5 (6-8')	10/30/19	mercury	0.0032	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-7 (0-0.5')	11/4/2019	mercury	0.26	mg/kg	soil	J+	Analyte was detected in method blank
SL-7 (10-12')	11/4/2019	mercury	0.003	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-7 (2.5-4')	11/4/2019	mercury	0.003	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-7 (2-2.5')	11/4/2019	mercury	0.0043	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-8 (0-0.5')	11/4/2019	mercury	0.53	mg/kg	soil	J+	Analyte was detected in method blank
SL-8 (12-14')	11/4/2019	mercury	0.0033	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-8 (2.5-4')	11/4/2019	mercury	0.016	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
SL-8 (2-2.5')	11/4/2019	mercury	0.012	mg/kg	soil	J+	Analyte was detected in method blank at similar concentration
EB110419	11/4/2019	Iron	0.018	mg/l	water	J+	Analyte was detected in method blank at similar concentration
EB110419	11/4/2019	Silver	0.00072	mg/l	water	J+	Analyte was detected in method blank at similar concentration
SL-5-GW	11/13/2019	nickel	0.03	mg/l	water	J+	Analyte was detected in method blank at similar concentration
SL-6-GW	11/13/2019	nickel	0.021	mg/l	water	J+	Analyte was detected in method blank at similar concentration
SL-7-GW	11/13/2019	nickel	0.029	mg/l	water	J+	Analyte was detected in method blank at similar concentration
SL-8-GW	11/13/2019	nickel	0.017	mg/l	water	J+	Analyte was detected in method blank at similar concentration
SL2 (14-16')	10/29/2019	2-butanone	0.062	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-2 (2.5-4')	10/29/2019	2-butanone	0.064	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-2 (2-2.5')	10/29/2019	2-butanone	0.036	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-3 (0-0.5')	10/29/2019	2-butanone	0.062	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-3 (14-16')	10/29/2019	2-butanone	0.068	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-4 (0-0.5')	10/30/2019	2-butanone	0.065	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-4 (14-16')	10/30/2019	2-butanone	0.045	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-4 (2-2.5')	10/30/2019	2-butanone	0.04	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-5 (12-14')	10/30/2019	2-butanone	0.05	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-7 (10-12')	11/4/2019	2-butanone	0.061	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-7 (2.5-4')	11/4/2019	2-butanone	0.058	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-7 (2-2.5')	11/4/2019	2-butanone	0.06	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-8 (12-14')	11/4/2019	2-butanone	0.052	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-8 (2.5-4')	11/4/2019	2-butanone	0.046	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-8 (2-2.5')	11/4/2019	2-butanone	0.056	mg/kg	soil	J+	Analyte detected in methanol blank at higher concentration and analyte is common laboratory contaminant
SL-1 (0-0.5')	10/28/2019	fluoride	4	mg/kg	soil	J+	MS recovery above limits
SL-1 (2-2.5')	10/28/2019	fluoride	5	mg/kg	soil	J+	MS recovery above limits
SL-1 (0-0.5')	10/28/2019	chloride	450	mg/kg	soil	J+	MS recovery above limits
SL-1 (12-14')	10/28/2019	chloride	40	mg/kg	soil	J+	MS recovery above limits

Table A-2
Qualified Data
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SL-1 (2-2.5')	10/28/2019	chloride	96	mg/kg	soil	J+	MS recovery above limits
SL-1 (6-8')	10/28/2019	chloride	66	mg/kg	soil	J+	MS recovery above limits
SL-1 (0-0.5')	10/28/2019	antimony	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (12-14')	10/28/2019	antimony	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	antimony	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (6-8')	10/28/2019	antimony	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (0-0.5')	10/28/2019	arsenic	3.7		soil	J-	MS recovery below limits
SL-1 (12-14')	10/28/2019	arsenic	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	arsenic	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (6-8')	10/28/2019	arsenic	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (0-0.5')	10/28/2019	barium	340	mg/kg	soil	J-	MS recovery below limits
SL-1 (12-14')	10/28/2019	barium	250	mg/kg	soil	J-	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	barium	220	mg/kg	soil	J-	MS recovery below limits
SL-1 (6-8')	10/28/2019	barium	170	mg/kg	soil	J-	MS recovery below limits
SL-1 (0-0.5')	10/28/2019	Lead	17	mg/kg	soil	J-	MS recovery below limits
SL-1 (12-14')	10/28/2019	Lead	2.2	mg/kg	soil	J-	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	Lead	5.7	mg/kg	soil	J-	MS recovery below limits
SL-1 (6-8')	10/28/2019	Lead	3	mg/kg	soil	J-	MS recovery below limits
SL-1 (0-0.5')	10/28/2019	Manganese	330	mg/kg	soil	J-	MS recovery below limits
SL-1 (12-14')	10/28/2019	Manganese	660	mg/kg	soil	J-	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	Manganese	250	mg/kg	soil	J-	MS recovery below limits
SL-1 (6-8')	10/28/2019	Manganese	250	mg/kg	soil	J-	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	Manganese	250	mg/kg	soil	J-	MS recovery below limits
SL-1 (6-8')	10/28/2019	Manganese	250	mg/kg	soil	J-	MS recovery below limits
SL-1 (0-0.5')	10/28/2019	selenium	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (12-14')	10/28/2019	selenium	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	selenium	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (6-8')	10/28/2019	selenium	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (0-0.5')	10/28/2019	silver	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (12-14')	10/28/2019	silver	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	silver	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (6-8')	10/28/2019	silver	ND	mg/kg	soil	UJ	MS recovery below limits
SL-1 (0-0.5')	10/28/2019	zinc	85	mg/kg	soil	J-	MS recovery below limits
SL-1 (12-14')	10/28/2019	zinc	16	mg/kg	soil	J-	MS recovery below limits
SL-1 (2-2.5')	10/28/2019	zinc	17	mg/kg	soil	J-	MS recovery below limits
SL-1 (6-8')	10/28/2019	zinc	11	mg/kg	soil	J-	MS recovery below limits
SL2 (14-16')	10/29/2019	DRO	6.1	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (2.5-4')	10/29/2019	DRO	54	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (2-2.5')	10/29/2019	DRO	210	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (6-8')	10/29/2019	DRO	13	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (0-0.5')	10/29/2019	DRO	1300	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (14-16')	10/29/2019	DRO	4.1	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (2-2.5')	10/29/2019	DRO	15	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (6-8')	10/29/2019	DRO	4	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (0-0.5')	10/29/2019	barium	500	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (2.5-4')	10/29/2019	barium	280	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (2-2.5')	10/29/2019	barium	140	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (0-0.5')	10/29/2019	barium	450	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (2-2.5')	10/29/2019	barium	200	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (6-8')	10/29/2019	barium	200	mg/kg	soil	J+	MS and MSD recoveries above the limits

Table A-2
Qualified Data
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SL-2 (0-0.5')	10/29/2019	Manganese	140	mg/kg	soil	J+	MSD above recovery limit
SL-2 (2.5-4')	10/29/2019	Manganese	230	mg/kg	soil	J+	MSD above recovery limit
SL-2 (2-2.5')	10/29/2019	Manganese	280	mg/kg	soil	J+	MSD above recovery limit
SL-3 (0-0.5')	10/29/2019	Manganese	300	mg/kg	soil	J+	MSD above recovery limit
SL-3 (2-2.5')	10/29/2019	Manganese	250	mg/kg	soil	J+	MSD above recovery limit
SL-3 (6-8')	10/29/2019	Manganese	240	mg/kg	soil	J+	MSD above recovery limit
SL-2 (0-0.5')	10/29/2019	zinc	75	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (2.5-4')	10/29/2019	zinc	10	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-2 (2-2.5')	10/29/2019	zinc	14	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (0-0.5')	10/29/2019	zinc	36	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (2-2.5')	10/29/2019	zinc	12	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-3 (6-8')	10/29/2019	zinc	11	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-6 (0-0.5')	10/31/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-6 (12-14')	10/31/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-6 (2-2.5')	10/31/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-6 (6-8')	10/31/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-6 (0-0.5')	10/31/2019	barium	850	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-6 (12-14')	10/31/2019	barium	880	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-6 (2-2.5')	10/31/2019	barium	180	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-6 (6-8')	10/31/2019	barium	64	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-7 (0-0.5')	11/4/2019	Manganese	65	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-7 (10-12')	11/4/2019	Manganese	480	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-7 (2.5-4')	11/4/2019	Manganese	160	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-7 (2-2.5')	11/4/2019	Manganese	140	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-8 (0-0.5')	11/4/2019	Manganese	90	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-8 (12-14')	11/4/2019	Manganese	680	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-8 (2.5-4')	11/4/2019	Manganese	160	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-8 (2-2.5')	11/4/2019	Manganese	140	mg/kg	soil	J+	MS and MSD recoveries above the limits
SL-7 (0-0.5')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (10-12')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (2.5-4')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (2-2.5')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (0-0.5')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (12-14')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (2.5-4')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (2-2.5')	11/4/2019	silver	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (0-0.5')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (10-12')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (2.5-4')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (2-2.5')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (0-0.5')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (12-14')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (2.5-4')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (2-2.5')	11/4/2019	selenium	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (0-0.5')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (10-12')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (2.5-4')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-7 (2-2.5')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (0-0.5')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits

Table A-2
Qualified Data
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
SL-8 (12-14')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (2.5-4')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits
SL-8 (2-2.5')	11/4/2019	antimony	ND	mg/kg	soil	UJ	MS and MSD recoveries below limits

Notes:

UJ ect, estimated reporting limit
J- Low bias
J+ High bias

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-3 (0-0.5')		DUP01		RPD
	Sample Result		Duplicate Result		(%)
Metals (mg/kg)					
Antimony	< 0.7696	u	< 0.744	u	NC
Arsenic	< 2.985	u	< 2.8861	u	NC
Barium	450.00	v	460	v	0.5
Beryllium	1.40	v	1.2	v	3.8
Cadmium	< 0.0508	u	< 0.0491	u	NC
Chromium (Total)	8.70	v	8.5	v	0.6
Hexavalent Chromium	< 1	u	< 1	u	NC
Cobalt	2.60	v	2.8	v	1.9
Iron	11000.00	v	11000	v	0.0
Lead	9.30	v	6.2	v	10.0
Manganese	300.00	v	300	v	0.0
Mercury (elemental)	0.03	J	0.021	J	4.3
Nickel	5.90	v	6.5	v	2.4
Selenium	< 2.6257	u	< 2.5386	u	NC
Silver	< 0.067	u	< 0.0648	u	NC
Vanadium	27.00	v	23.00	v	4.0
Zinc	36.00	v	33.00	v	2.2
Non-Metals (mg/kg)					
Cyanide	< 0.25	u	0.29	v	NC
chloride	15.00	v	15.00	v	0.0
fluoride	3.70	v	4.10	v	2.6
sulfate	140.00	v	160.00	v	3.3
Nitrogen, Nitrate (As N)	13.00	v	12.00	v	2.0
Nitrogen, Nitrite (As N)	< 1.5	u	< 1.494	u	NC
Volatiles (mg/kg)					
1,1,1,2-Tetrachloroethane	< 0.0029	u	< 0.0028	u	NC
1,1,1-Trichloroethane	< 0.0038	u	< 0.0037	u	NC
1,1,2,2-Tetrachloroethane	< 0.0043	u	< 0.0042	u	NC
1,1,2-Trichloroethane	< 0.003	u	< 0.0029	u	NC
1,1-Dichloroethane	< 0.0027	u	< 0.0026	u	NC
1,1-Dichloroethene	< 0.017	u	< 0.0165	u	NC
1,1-Dichloropropene	< 0.0039	u	< 0.0038	u	NC
Trichlorobenzene, 1,2,3-	< 0.0037	u	< 0.0036	u	NC
1,2,3-Trichloropropane	< 0.0069	u	< 0.0067	u	NC
1,2,4-Trichlorobenzene	< 0.0043	u	< 0.0042	u	NC
Trimethylbenzene, 1,2,4-	< 0.0039	u	< 0.0038	u	NC
1,2-Dibromo-3-chloropropane	< 0.0043	u	< 0.0042	u	NC
1,2-Dibromoethane (Ethylene dibromide)	< 0.0039	u	< 0.0038	u	NC
1,2-Dichlorobenzene	< 0.0035	u	< 0.0034	u	NC
1,2-Dichloroethane	< 0.0043	u	< 0.0042	u	NC
1,2-Dichloropropane	< 0.0031	u	< 0.003	u	NC
Trimethylbenzene, 1,3,5-	< 0.0041	u	< 0.004	u	NC
1,3-Dichlorobenzene	< 0.0037	u	< 0.0036	u	NC
Dichloropropane, 1,3-	< 0.0046	u	< 0.0045	u	NC
1,4-Dichlorobenzene	< 0.0035	u	< 0.0034	u	NC
1-Methylnaphthalene	< 0.0244	u	< 0.0237	u	NC
2,2-Dichloropropane	< 0.0138	u	< 0.0134	u	NC
2-Butanone (Methyl ethyl ketone, MEK)	0.06	J	< 0.0476	u	NC
o-Chlorotoluene	< 0.0037	u	< 0.0036	u	NC
Hexanone, 2-	< 0.007	u	< 0.0068	u	NC
2-Methylnaphthalene	< 0.0185	u	< 0.018	u	NC
Chlorotoluene, p-	< 0.0035	u	< 0.0034	u	NC
4-Isopropyltoluene	< 0.0035	u	< 0.0034	u	NC
Methyl isobutyl ketone	< 0.008	u	< 0.0078	u	NC
Acetone	< 0.0351	u	< 0.0341	u	NC
Benzene	< 0.0035	u	< 0.0034	u	NC
Bromobenzene	< 0.0041	u	< 0.0039	u	NC
Bromodichloromethane	< 0.0039	u	< 0.0038	u	NC
Tribromomethane (Bromoform)	< 0.0038	u	< 0.0037	u	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-3 (0-0.5')		DUP01		RPD
	Sample Result		Duplicate Result		(%)
Bromomethane	< 0.0102	u	< 0.0099	u	NC
Carbon disulfide	< 0.014	u	< 0.0136	u	NC
Carbon tetrachloride	< 0.004	u	< 0.0039	u	NC
Chlorobenzene (Monochlorobenzene)	< 0.0054	u	< 0.0053	u	NC
Ethyl chloride	< 0.0062	u	< 0.0061	u	NC
Chloroform	< 0.0034	u	< 0.0033	u	NC
Chloromethane	< 0.0041	u	< 0.0039	u	NC
cis-1,2-Dichloroethene	< 0.0058	u	< 0.0056	u	NC
cis-1,3-Dichloropropene	< 0.0036	u	< 0.0035	u	NC
Dibromochloromethane	< 0.003	u	< 0.0029	u	NC
Dibromomethane (Methylene Bromide)	< 0.0046	u	< 0.0044	u	NC
Dichlorodifluoromethane	< 0.0098	u	< 0.0096	u	NC
Ethylbenzene	< 0.0025	u	< 0.0024	u	NC
Hexachloro-1,3-butadiene	< 0.0043	u	< 0.0042	u	NC
Cumene (isopropylbenzene)	< 0.0031	u	< 0.003	u	NC
tert-Butyl methyl ether (MTBE)	< 0.0101	u	< 0.0098	u	NC
Methylene chloride (Dichloromethane)	< 0.0075	u	< 0.0073	u	NC
Naphthalene	< 0.0085	u	< 0.0082	u	NC
Butylbenzene, n-	< 0.004	u	< 0.0038	u	NC
Propyl benzene	< 0.0034	u	< 0.0033	u	NC
Butylbenzene, sec-	< 0.0048	u	< 0.0046	u	NC
Styrene	< 0.0033	u	< 0.0032	u	NC
Butylbenzene, tert-	< 0.004	u	< 0.0039	u	NC
Tetrachloroethene	< 0.0034	u	< 0.0033	u	NC
Toluene	< 0.0041	u	< 0.0039	u	NC
trans-1,2-Dichloroethene	< 0.0039	u	< 0.0038	u	NC
trans-1,3-Dichloropropene	< 0.0045	u	< 0.0044	u	NC
Trichloroethylene	< 0.0049	u	< 0.0048	u	NC
Trichlorofluoromethane	< 0.0144	u	< 0.014	u	NC
Vinyl chloride	< 0.0028	u	< 0.0027	u	NC
Xylenes	< 0.0107	u	< 0.0104	u	NC
Semi-volatiles (mg/kg)					NC
1,2,4-Trichlorobenzene	< 0.3128	u	< 1.4621	u	NC
1,2-Dichlorobenzene	< 0.2418	u	< 1.1302	u	NC
1,3-Dichlorobenzene	< 0.2119	u	< 0.9906	u	NC
1,4-Dichlorobenzene	< 0.2144	u	< 1.0021	u	NC
1-Methylnaphthalene	< 0.3013	u	< 1.4082	u	NC
2,4,5-Trichlorophenol	< 0.261	u	< 1.2197	u	NC
2,4,6-Trichlorophenol	< 0.2116	u	< 0.989	u	NC
2,4-Dichlorophenol	< 0.2341	u	< 1.0943	u	NC
2,4-Dimethylphenol	< 0.2219	u	< 1.0369	u	NC
2,4-Dinitrophenol	< 0.1463	u	< 0.6836	u	NC
2,4-Dinitrotoluene	< 0.2373	u	< 1.1089	u	NC
2,6-Dintitrotoluene	< 0.2649	u	< 1.2382	u	NC
b-Chloronaphthalene	< 0.2512	u	< 1.174	u	NC
2-Chlorophenol	< 0.2504	u	< 1.1704	u	NC
2-Methylnaphthalene	< 0.2933	u	< 1.3707	u	NC
Cresol, o-	< 0.2387	u	< 1.1158	u	NC
Nitroaniline, 2-	< 0.2875	u	< 1.3437	u	NC
2-Nitrophenol	< 0.2749	u	< 1.2847	u	NC
3,3-Dichlorobenzidine	< 0.1789	u	< 0.8363	u	NC
3+4-Methylphenol	< 0.2471	u	< 1.1548	u	NC
3-Nitroaniline	< 0.2778	u	< 1.2982	u	NC
4,6-Dinitro-o-cresol	< 0.1859	u	< 0.869	u	NC
4-Bromophenyl phenyl ether	< 0.2366	u	< 1.106	u	NC
4-Chloro-3-methylphenol	< 0.3089	u	< 1.4435	u	NC
Chloroaniline, p-	< 0.2852	u	< 1.3328	u	NC
4-Chlorophenyl phenyl ether	< 0.2194	u	< 1.0254	u	NC
Nitroaniline, 4-	< 0.257	u	< 1.2013	u	NC
4-Nitrophenol	< 0.273	u	< 1.2759	u	NC
Acenaphthene	< 0.2415	u	< 1.1286	u	NC
Acenaphthylene	< 0.2206	u	< 1.0312	u	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-3 (0-0.5')		DUP01		RPD
	Sample Result		Duplicate Result		(%)
Aniline	< 0.2588	u	< 1.2098	u	NC
Anthracene	< 0.2152	u	< 1.006	u	NC
Azobenzene	< 0.2818	u	< 1.3171	u	NC
Benzo(a)anthracene	< 0.194	u	< 0.9065	u	NC
Benzo(a)pyrene	< 0.1789	u	< 0.8362	u	NC
Benzo(b)fluoranthene	< 0.178	u	< 0.8321	u	NC
Benzo(g,h,i)perylene	< 0.1727	u	< 0.807	u	NC
Benzo(k)fluoranthene	< 0.183	u	< 0.8551	u	NC
Benzoic acid	< 0.2079	u	< 0.9717	u	NC
Benzyl alcohol	< 0.2497	u	< 1.1672	u	NC
Bis(2-chloroethoxy)methane	< 0.2976	u	< 1.3907	u	NC
Bis(2-chloroethyl) ether	< 0.2453	u	< 1.1466	u	NC
Bis(2-chloroisopropyl) ether	< 0.2292	u	< 1.071	u	NC
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate, DEHP]	< 0.2892	u	< 1.3516	u	NC
Butyl Benzyl Phthalate	< 0.2058	u	< 0.9617	u	NC
Carbazole	< 0.2361	u	< 1.1033	u	NC
Chrysene	< 0.1775	u	< 0.8297	u	NC
Dibenz(a,h)anthracene	< 0.183	u	< 0.8554	u	NC
Dibenzofuran	< 0.2638	u	< 1.2329	u	NC
Diethyl phthalate	< 0.2873	u	< 1.3426	u	NC
Dimethyl phthalate (DMP, Phthalic Acid)	< 0.2684	u	< 1.2546	u	NC
Di-n-butyl phthalate (Dibutyl phthalate)	< 0.3005	u	< 1.4042	u	NC
Di-n-octyl phthalate	< 0.2054	u	< 0.96	u	NC
Fluoranthene	< 0.2255	u	< 1.0537	u	NC
Fluorene	< 0.2294	u	< 1.0722	u	NC
Hexachlorobenzene	< 0.2492	u	< 1.1647	u	NC
Hexachloro-1,3-butadiene	< 0.2807	u	< 1.3117	u	NC
Hexachlorocyclopentadiene	< 0.2301	u	< 1.0755	u	NC
Hexachloroethane	< 0.2243	u	< 1.0481	u	NC
Indeno(1,2,3-c,d)pyrene	< 0.2004	u	< 0.9366	u	NC
Isophorone	< 0.2964	u	< 1.3854	u	NC
Naphthalene	< 0.3044	u	< 1.4228	u	NC
Nitrobenzene	< 0.2784	u	< 1.3011	u	NC
Nitroso-di-N-propylamine, N-	< 0.2874	u	< 1.3432	u	NC
N-Nitrosodiphenylamine	< 0.2116	u	< 0.989	u	NC
Pentachlorophenol	< 0.2075	u	< 0.9697	u	NC
Phenanthrene	< 0.2179	u	< 1.0183	u	NC
Phenol	< 0.2504	u	< 1.1704	u	NC
Pyrene	< 0.1891	u	< 0.8839	u	NC
Pyridine	< 0.2424	u	< 1.133	u	NC
Total Petroleum Hydrocarbons (mg/kg)					
Gasoline Range Organics (GRO)	< 1.2835	u	< 1.2465	u	NC
Diesel Range Organics (DRO)	1300.00	v	1200	v	2.0
Motor Oil Range Organics (MRO)	< 470.8098	u	< 472.5898	u	NC

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-5 (2-2.5')		DUP02		RPD
	Sample Result		Duplicate Result		(%)
Metals (mg/kg)					
Antimony	< 0.7628	u	< 0.7181	u	NC
Arsenic	< 2.9587	u	< 2.7856	u	NC
Barium	280.00	v	360	v	6.3
Beryllium	0.88	v	0.96	v	2.2
Cadmium	< 0.0503	u	< 0.0474	u	NC
Chromium (Total)	7.40	v	8	v	1.9
Hexavalent Chromium	< 1	u	< 1	u	NC
Cobalt	3.90	v	4	v	0.6
Iron	12000.00	v	13000	v	2.0
Lead	3.30	v	3.4	v	0.7
Manganese	160.00	v	160	v	0.0
Mercury (elemental)	0.01	J	0.0069	J	1.9
Nickel	7.20	v	8.2	v	3.2
Selenium	< 2.6025	u	< 2.4502	u	NC
Silver	< 0.0665	u	< 0.0626	u	NC
Vanadium	15.00	v	16.00000	v	1.6
Zinc	12.00	v	13.00000	v	2.0
Non-Metals (mg/kg)					
Cyanide	< 0.25	u	< 0.25	u	NC
chloride	45.00	v	42.00000	v	NC
fluoride	2.60	v	2.70000	v	NC
sulfate	280.00	v	250.00000	v	NC
Nitrogen, Nitrate (As N)	25.00	v	31.00000	v	NC
Nitrogen, Nitrite (As N)	< 1.4955	u	< 1.4955	u	NC
Volatiles (mg/kg)					
1,1,1,2-Tetrachloroethane	< 0.0017	u	< 0.0021	u	NC
1,1,1-Trichloroethane	< 0.0023	u	< 0.0028	u	NC
1,1,2,2-Tetrachloroethane	< 0.0026	u	< 0.0031	u	NC
1,1,2-Trichloroethane	< 0.0018	u	< 0.0022	u	NC
1,1-Dichloroethane	< 0.0016	u	< 0.002	u	NC
1,1-Dichloroethene	< 0.0101	u	< 0.0122	u	NC
1,1-Dichloropropene	< 0.0023	u	< 0.0028	u	NC
Trichlorobenzene, 1,2,3-	< 0.0022	u	< 0.0027	u	NC
1,2,3-Trichloropropane	< 0.0041	u	< 0.005	u	NC
1,2,4-Trichlorobenzene	< 0.0026	u	< 0.0031	u	NC
Trimethylbenzene, 1,2,4-	< 0.0023	u	< 0.0028	u	NC
1,2-Dibromo-3-chloropropane	< 0.0026	u	< 0.0031	u	NC
1,2-Dibromoethane (Ethylene dibromide)	< 0.0023	u	< 0.0028	u	NC
1,2-Dichlorobenzene	< 0.0021	u	< 0.0025	u	NC
1,2-Dichloroethane	< 0.0026	u	< 0.0031	u	NC
1,2-Dichloropropane	< 0.0018	u	< 0.0022	u	NC
Trimethylbenzene, 1,3,5-	< 0.0024	u	< 0.003	u	NC
1,3-Dichlorobenzene	< 0.0022	u	< 0.0027	u	NC
Dichloropropane, 1,3-	< 0.0027	u	< 0.0033	u	NC
1,4-Dichlorobenzene	< 0.0021	u	< 0.0026	u	NC
1-Methylnaphthalene	< 0.0145	u	< 0.0176	u	NC
2,2-Dichloropropane	< 0.0082	u	< 0.01	u	NC
2-Butanone (Methyl ethyl ketone, MEK)	< 0.0292	u	0.03900	J	NC
o-Chlorotoluene	< 0.0022	u	< 0.0027	u	NC
Hexanone, 2-	< 0.0042	u	< 0.0051	u	NC
2-Methylnaphthalene	< 0.011	u	< 0.0134	u	NC
Chlorotoluene, p-	< 0.0021	u	< 0.0025	u	NC
4-Isopropyltoluene	< 0.0021	u	< 0.0025	u	NC
Methyl isobutyl ketone	< 0.0048	u	< 0.0058	u	NC
Acetone	< 0.0209	u	< 0.0254	u	NC
Benzene	< 0.0021	u	< 0.0025	u	NC
Bromobenzene	< 0.0024	u	< 0.0029	u	NC
Bromodichloromethane	< 0.0023	u	< 0.0028	u	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-5 (2-2.5')		DUP02		RPD
	Sample Result		Duplicate Result		(%)
Tribromomethane (Bromoform)	< 0.0023	u	< 0.0028	u	NC
Bromomethane	< 0.0061	u	< 0.0074	u	NC
Carbon disulfide	< 0.0083	u	< 0.0101	u	NC
Carbon tetrachloride	< 0.0024	u	< 0.0029	u	NC
Chlorobenzene (Monochlorobenzene)	< 0.0032	u	< 0.0039	u	NC
Ethyl chloride	< 0.0037	u	< 0.0045	u	NC
Chloroform	< 0.002	u	< 0.0025	u	NC
Chloromethane	< 0.0024	u	< 0.0029	u	NC
cis-1,2-Dichloroethene	< 0.0035	u	< 0.0042	u	NC
cis-1,3-Dichloropropene	< 0.0021	u	< 0.0026	u	NC
Dibromochloromethane	< 0.0018	u	< 0.0022	u	NC
Dibromomethane (Methylene Bromide)	< 0.0027	u	< 0.0033	u	NC
Dichlorodifluoromethane	< 0.0059	u	< 0.0071	u	NC
Ethylbenzene	< 0.0015	u	< 0.0018	u	NC
Hexachloro-1,3-butadiene	< 0.0026	u	< 0.0031	u	NC
Cumene (isopropylbenzene)	< 0.0018	u	< 0.0022	u	NC
tert-Butyl methyl ether (MTBE)	< 0.006	u	< 0.0073	u	NC
Methylene chloride (Dichloromethane)	< 0.0045	u	< 0.0054	u	NC
Naphthalene	< 0.0051	u	< 0.0061	u	NC
Butylbenzene, n-	< 0.0024	u	< 0.0029	u	NC
Propyl benzene	< 0.002	u	< 0.0024	u	NC
Butylbenzene, sec-	< 0.0028	u	< 0.0034	u	NC
Styrene	< 0.002	u	< 0.0024	u	NC
Butylbenzene, tert-	< 0.0024	u	< 0.0029	u	NC
Tetrachloroethene	< 0.002	u	< 0.0024	u	NC
Toluene	< 0.0024	u	< 0.0029	u	NC
trans-1,2-Dichloroethene	< 0.0023	u	< 0.0028	u	NC
trans-1,3-Dichloropropene	< 0.0027	u	< 0.0032	u	NC
Trichloroethylene	< 0.0029	u	< 0.0035	u	NC
Trichlorofluoromethane	< 0.0086	u	< 0.0104	u	NC
Vinyl chloride	< 0.0016	u	< 0.002	u	NC
Xylenes	< 0.0064	u	< 0.0077	u	NC
Semi-volatiles (mg/kg)					
1,2,4-Trichlorobenzene	< 0.2921	u	< 0.2926	u	NC
1,2-Dichlorobenzene	< 0.2257	u	< 0.2262	u	NC
1,3-Dichlorobenzene	< 0.1979	u	< 0.1982	u	NC
1,4-Dichlorobenzene	< 0.2002	u	< 0.2006	u	NC
1-Methylnaphthalene	< 0.2813	u	< 0.2818	u	NC
2,4,5-Trichlorophenol	< 0.2436	u	< 0.2441	u	NC
2,4,6-Trichlorophenol	< 0.1975	u	< 0.1979	u	NC
2,4-Dichlorophenol	< 0.2186	u	< 0.219	u	NC
2,4-Dimethylphenol	< 0.2071	u	< 0.2075	u	NC
2,4-Dinitrophenol	< 0.1365	u	< 0.1368	u	NC
2,4-Dinitrotoluene	< 0.2215	u	< 0.2219	u	NC
2,6-Dintitrotoluene	< 0.2473	u	< 0.2478	u	NC
b-Chloronaphthalene	< 0.2345	u	< 0.2349	u	NC
2-Chlorophenol	< 0.2338	u	< 0.2342	u	NC
2-Methylnaphthalene	< 0.2738	u	< 0.2743	u	NC
Cresol, o-	< 0.2229	u	< 0.2233	u	NC
Nitroaniline, 2-	< 0.2684	u	< 0.2689	u	NC
2-Nitrophenol	< 0.2566	u	< 0.2571	u	NC
3,3-Dichlorobenzidine	< 0.1671	u	< 0.1674	u	NC
3+4-Methylphenol	< 0.2307	u	< 0.2311	u	NC
3-Nitroaniline	< 0.2593	u	< 0.2598	u	NC
4,6-Dinitro-o-cresol	< 0.1736	u	< 0.1739	u	NC
4-Bromophenyl phenyl ether	< 0.2209	u	< 0.2213	u	NC
4-Chloro-3-methylphenol	< 0.2883	u	< 0.2889	u	NC
Chloroaniline, p-	< 0.2662	u	< 0.2667	u	NC
4-Chlorophenyl phenyl ether	< 0.2048	u	< 0.2052	u	NC
Nitroaniline, 4-	< 0.24	u	< 0.2404	u	NC
4-Nitrophenol	< 0.2549	u	< 0.2553	u	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-5 (2-2.5')		DUP02		RPD
	Sample Result		Duplicate Result		(%)
Acenaphthene	< 0.2254	u	< 0.2259	u	NC
Acenaphthylene	< 0.206	u	< 0.2064	u	NC
Aniline	< 0.2417	u	< 0.2421	u	NC
Anthracene	< 0.2009	u	< 0.2013	u	NC
Azobenzene	< 0.2631	u	< 0.2636	u	NC
Benzo(a)anthracene	< 0.1811	u	< 0.1814	u	NC
Benzo(a)pyrene	< 0.167	u	< 0.1673	u	NC
Benzo(b)fluoranthene	< 0.1662	u	< 0.1665	u	NC
Benzo(g,h,i)perylene	< 0.1612	u	< 0.1615	u	NC
Benzo(k)fluoranthene	< 0.1708	u	< 0.1711	u	NC
Benzoic acid	< 0.1941	u	< 0.1945	u	NC
Benzyl alcohol	< 0.2332	u	< 0.2336	u	NC
Bis(2-chloroethoxy)methane	< 0.2778	u	< 0.2783	u	NC
Bis(2-chloroethyl) ether	< 0.229	u	< 0.2295	u	NC
Bis(2-chloroisopropyl) ether	< 0.2139	u	< 0.2143	u	NC
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate, DEHP]	< 0.27	u	< 0.2705	u	NC
Butyl Benzyl Phthalate	< 0.1921	u	< 0.1925	u	NC
Carbazole	< 0.2204	u	< 0.2208	u	NC
Chrysene	< 0.1657	u	< 0.166	u	NC
Dibenz(a,h)anthracene	< 0.1709	u	< 0.1712	u	NC
Dibenzofuran	< 0.2463	u	< 0.2467	u	NC
Diethyl phthalate	< 0.2682	u	< 0.2687	u	NC
Dimethyl phthalate (DMP, Phthalic Acid)	< 0.2506	u	< 0.2511	u	NC
Di-n-butyl phthalate (Dibutyl phthalate)	< 0.2805	u	< 0.281	u	NC
Di-n-octyl phthalate	< 0.1918	u	< 0.1921	u	NC
Fluoranthene	< 0.2105	u	< 0.2109	u	NC
Fluorene	< 0.2142	u	< 0.2146	u	NC
Hexachlorobenzene	< 0.2326	u	< 0.2331	u	NC
Hexachloro-1,3-butadiene	< 0.262	u	< 0.2625	u	NC
Hexachlorocyclopentadiene	< 0.2148	u	< 0.2152	u	NC
Hexachloroethane	< 0.2094	u	< 0.2098	u	NC
Indeno(1,2,3-c,d)pyrene	< 0.1871	u	< 0.1874	u	NC
Isophorone	< 0.2767	u	< 0.2773	u	NC
Naphthalene	< 0.2842	u	< 0.2847	u	NC
Nitrobenzene	< 0.2599	u	< 0.2604	u	NC
Nitroso-di-N-propylamine, N-	< 0.2683	u	< 0.2688	u	NC
N-Nitrosodiphenylamine	< 0.1976	u	< 0.1979	u	NC
Pentachlorophenol	< 0.1937	u	< 0.1941	u	NC
Phenanthrene	< 0.2034	u	< 0.2038	u	NC
Phenol	< 0.2338	u	< 0.2342	u	NC
Pyrene	< 0.1766	u	< 0.1769	u	NC
Pyridine	< 0.2263	u	< 0.2267	u	NC
Total Petroleum Hydrocarbons (mg/kg)					
Gasoline Range Organics (GRO)	< 0.7639	u	< 0.9266	u	NC
Diesel Range Organics (DRO)	< 1.8674	u	< 1.8248	u	NC
Motor Oil Range Organics (MRO)	< 46.6853	u	< 45.6204	u	NC

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-7 (2-2.5')		DUP03		RPD
	Sample Result		Duplicate Result		(%)
Metals (mg/kg)					
Antimony	< 0.7383	u	< 0.7397	u	NC
Arsenic	< 2.8638	u	< 2.8692	u	NC
Barium	300.00	v	160	v	15.2
Beryllium	0.86	v	0.9	v	1.1
Cadmium	< 0.0487	u	< 0.0488	u	NC
Chromium (Total)	6.40	v	6.9	v	1.9
Hexavalent Chromium	< 0.64	u	< 0.64	u	NC
Cobalt	3.70	v	4	v	NC
Iron	11000.00	v	12000	v	2.2
Lead	3.90	v	4.8	v	5.2
Manganese	140.00	v	140	v	0.0
Mercury (elemental)	0.00	J	0.0057	J	7.0
Nickel	6.90	v	7.5	v	2.1
Selenium	< 2.519	u	< 2.5238	u	NC
Silver	< 0.0643	u	< 0.0644	u	NC
Vanadium	14.00	v	14.00	v	0.0
Zinc	11.00	v	11.00	v	0.0
Non-Metals (mg/kg)					
Cyanide	0.04	J	< 0.039	u	NC
chloride	32.00	v	30.00	v	1.6
fluoride	3.20	v	3.30	v	0.8
sulfate	570.00	v	480.00	v	4.3
Nitrogen, Nitrate (As N)	< 1.503	u	< 1.503	u	NC
Nitrogen, Nitrite (As N)	< 1.503	u	< 1.503	u	NC
Volatiles (mg/kg)					NC
1,1,1,2-Tetrachloroethane	< 0.002	u	< 0.0019	u	NC
1,1,1-Trichloroethane	< 0.0027	u	< 0.0026	u	NC
1,1,2,2-Tetrachloroethane	< 0.003	u	< 0.0029	u	NC
1,1,2-Trichloroethane	< 0.0021	u	< 0.002	u	NC
1,1-Dichloroethane	< 0.0019	u	< 0.0018	u	NC
1,1-Dichloroethene	< 0.012	u	< 0.0115	u	NC
1,1-Dichloropropene	< 0.0027	u	< 0.0026	u	NC
Trichlorobenzene, 1,2,3-	< 0.0026	u	< 0.0025	u	NC
1,2,3-Trichloropropane	< 0.0048	u	< 0.0047	u	NC
1,2,4-Trichlorobenzene	< 0.003	u	< 0.0029	u	NC
Trimethylbenzene, 1,2,4-	< 0.0027	u	< 0.0026	u	NC
1,2-Dibromo-3-chloropropane	< 0.0031	u	< 0.003	u	NC
1,2-Dibromoethane (Ethylene dibromide)	< 0.0027	u	< 0.0026	u	NC
1,2-Dichlorobenzene	< 0.0025	u	< 0.0024	u	NC
1,2-Dichloroethane	< 0.0031	u	< 0.0029	u	NC
1,2-Dichloropropane	< 0.0022	u	< 0.0021	u	NC
Trimethylbenzene, 1,3,5-	< 0.0029	u	< 0.0028	u	NC
1,3-Dichlorobenzene	< 0.0026	u	< 0.0025	u	NC
Dichloropropane, 1,3-	< 0.0032	u	< 0.0031	u	NC
1,4-Dichlorobenzene	< 0.0025	u	< 0.0024	u	NC
1-Methylnaphthalene	< 0.0172	u	< 0.0166	u	NC
2,2-Dichloropropane	< 0.0097	u	< 0.0094	u	NC
2-Butanone (Methyl ethyl ketone, MEK)	0.06	J	0.04700	J	NC
o-Chlorotoluene	< 0.0026	u	< 0.0025	u	NC
Hexanone, 2-	< 0.005	u	< 0.0048	u	NC
2-Methylnaphthalene	< 0.0131	u	< 0.0126	u	NC
Chlorotoluene, p-	< 0.0025	u	< 0.0024	u	NC
4-Isopropyltoluene	< 0.0025	u	< 0.0024	u	NC
Methyl isobutyl ketone	< 0.0057	u	< 0.0054	u	NC
Acetone	< 0.0248	u	< 0.0239	u	NC
Benzene	< 0.0025	u	< 0.0024	u	NC
Bromobenzene	< 0.0029	u	< 0.0028	u	NC
Bromodichloromethane	< 0.0027	u	< 0.0026	u	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-7 (2-2.5')		DUP03		RPD
	Sample Result		Duplicate Result		(%)
Tribromomethane (Bromoform)	< 0.0027	u	< 0.0026	u	NC
Bromomethane	< 0.0072	u	< 0.0069	u	NC
Carbon disulfide	< 0.0099	u	< 0.0095	u	NC
Carbon tetrachloride	< 0.0028	u	< 0.0027	u	NC
Chlorobenzene (Monochlorobenzene)	< 0.0038	u	< 0.0037	u	NC
Ethyl chloride	< 0.0044	u	< 0.0042	u	NC
Chloroform	< 0.0024	u	< 0.0023	u	NC
Chloromethane	< 0.0029	u	< 0.0028	u	NC
cis-1,2-Dichloroethene	< 0.0041	u	< 0.0039	u	NC
cis-1,3-Dichloropropene	< 0.0025	u	< 0.0024	u	NC
Dibromochloromethane	< 0.0021	u	< 0.002	u	NC
Dibromomethane (Methylene Bromide)	< 0.0032	u	< 0.0031	u	NC
Dichlorodifluoromethane	< 0.007	u	< 0.0067	u	NC
Ethylbenzene	< 0.0017	u	< 0.0017	u	NC
Hexachloro-1,3-butadiene	< 0.003	u	< 0.0029	u	NC
Cumene (isopropylbenzene)	< 0.0022	u	< 0.0021	u	NC
tert-Butyl methyl ether (MTBE)	< 0.0071	u	< 0.0068	u	NC
Methylene chloride (Dichloromethane)	< 0.0053	u	< 0.0051	u	NC
Naphthalene	< 0.006	u	< 0.0058	u	NC
Butylbenzene, n-	< 0.0028	u	< 0.0027	u	NC
Propyl benzene	< 0.0024	u	< 0.0023	u	NC
Butylbenzene, sec-	< 0.0034	u	< 0.0032	u	NC
Styrene	< 0.0024	u	< 0.0023	u	NC
Butylbenzene, tert-	< 0.0028	u	< 0.0027	u	NC
Tetrachloroethene	< 0.0024	u	< 0.0023	u	NC
Toluene	< 0.0029	u	< 0.0028	u	NC
trans-1,2-Dichloroethene	< 0.0027	u	< 0.0026	u	NC
trans-1,3-Dichloropropene	< 0.0032	u	< 0.003	u	NC
Trichloroethylene	< 0.0035	u	< 0.0033	u	NC
Trichlorofluoromethane	< 0.0102	u	< 0.0098	u	NC
Vinyl chloride	< 0.002	u	< 0.0019	u	NC
Xylenes	< 0.0076	u	< 0.0073	u	NC
Semi-volatiles (mg/kg)					
1,2,4-Trichlorobenzene	< 0.1453	u	< 0.3012	u	NC
1,2-Dichlorobenzene	< 0.1123	u	< 0.2328	u	NC
1,3-Dichlorobenzene	< 0.0984	u	< 0.2041	u	NC
1,4-Dichlorobenzene	< 0.0996	u	< 0.2065	u	NC
1-Methylnaphthalene	< 0.1399	u	< 0.2901	u	NC
2,4,5-Trichlorophenol	< 0.1212	u	< 0.2513	u	NC
2,4,6-Trichlorophenol	< 0.0983	u	< 0.2037	u	NC
2,4-Dichlorophenol	< 0.1087	u	< 0.2254	u	NC
2,4-Dimethylphenol	< 0.103	u	< 0.2136	u	NC
2,4-Dinitrophenol	< 0.0679	u	< 0.1408	u	NC
2,4-Dinitrotoluene	< 0.1102	u	< 0.2284	u	NC
2,6-Dintitrotoluene	< 0.1231	u	< 0.2551	u	NC
b-Chloronaphthalene	< 0.1167	u	< 0.2419	u	NC
2-Chlorophenol	< 0.1163	u	< 0.2411	u	NC
2-Methylnaphthalene	< 0.1362	u	< 0.2824	u	NC
Cresol, o-	< 0.1109	u	< 0.2299	u	NC
Nitroaniline, 2-	< 0.1335	u	< 0.2768	u	NC
2-Nitrophenol	< 0.1277	u	< 0.2647	u	NC
3,3-Dichlorobenzidine	< 0.0831	u	< 0.1723	u	NC
3+4-Methylphenol	< 0.1148	u	< 0.2379	u	NC
3-Nitroaniline	< 0.129	u	< 0.2674	u	NC
4,6-Dinitro-o-cresol	< 0.0864	u	< 0.179	u	NC
4-Bromophenyl phenyl ether	< 0.1099	u	< 0.2278	u	NC
4-Chloro-3-methylphenol	< 0.1434	u	< 0.2974	u	NC
Chloroaniline, p-	< 0.1324	u	< 0.2746	u	NC
4-Chlorophenyl phenyl ether	< 0.1019	u	< 0.2112	u	NC
Nitroaniline, 4-	< 0.1194	u	< 0.2475	u	NC
4-Nitrophenol	< 0.1268	u	< 0.2628	u	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-7 (2-2.5')		DUP03		RPD
	Sample Result		Duplicate Result		(%)
Acenaphthene	< 0.1122	u	< 0.2325	u	NC
Acenaphthylene	< 0.1025	u	< 0.2124	u	NC
Aniline	< 0.1202	u	< 0.2492	u	NC
Anthracene	< 0.1	u	< 0.2072	u	NC
Azobenzene	< 0.1309	u	< 0.2713	u	NC
Benzo(a)anthracene	< 0.0901	u	< 0.1867	u	NC
Benzo(a)pyrene	< 0.0831	u	< 0.1723	u	NC
Benzo(b)fluoranthene	< 0.0827	u	< 0.1714	u	NC
Benzo(g,h,i)perylene	< 0.0802	u	< 0.1663	u	NC
Benzo(k)fluoranthene	< 0.085	u	< 0.1762	u	NC
Benzoic acid	< 0.0966	u	< 0.2002	u	NC
Benzyl alcohol	< 0.116	u	< 0.2405	u	NC
Bis(2-chloroethoxy)methane	< 0.1382	u	< 0.2865	u	NC
Bis(2-chloroethyl) ether	< 0.1139	u	< 0.2362	u	NC
Bis(2-chloroisopropyl) ether	< 0.1064	u	< 0.2206	u	NC
Bis(2-ethylhexyl)phthalate [Di(2-ethylhexyl)phthalate, DEHP]	< 0.1343	u	< 0.2785	u	NC
Butyl Benzyl Phthalate	< 0.0956	u	< 0.1981	u	NC
Carbazole	< 0.1096	u	< 0.2273	u	NC
Chrysene	< 0.0825	u	< 0.1709	u	NC
Dibenz(a,h)anthracene	< 0.085	u	< 0.1762	u	NC
Dibenzofuran	< 0.1225	u	< 0.254	u	NC
Diethyl phthalate	< 0.1334	u	< 0.2766	u	NC
Dimethyl phthalate (DMP, Phthalic Acid)	< 0.1247	u	< 0.2585	u	NC
Di-n-butyl phthalate (Dibutyl phthalate)	< 0.1395	u	< 0.2893	u	NC
Di-n-octyl phthalate	< 0.0954	u	< 0.1978	u	NC
Fluoranthene	< 0.1047	u	< 0.2171	u	NC
Fluorene	< 0.1066	u	< 0.2209	u	NC
Hexachlorobenzene	< 0.1157	u	< 0.2399	u	NC
Hexachloro-1,3-butadiene	< 0.1304	u	< 0.2702	u	NC
Hexachlorocyclopentadiene	< 0.1069	u	< 0.2216	u	NC
Hexachloroethane	< 0.1042	u	< 0.2159	u	NC
Indeno(1,2,3-c,d)pyrene	< 0.0931	u	< 0.1929	u	NC
Isophorone	< 0.1377	u	< 0.2854	u	NC
Naphthalene	< 0.1414	u	< 0.2931	u	NC
Nitrobenzene	< 0.1293	u	< 0.268	u	NC
Nitroso-di-N-propylamine, N-	< 0.1335	u	< 0.2767	u	NC
N-Nitrosodiphenylamine	< 0.0983	u	< 0.2037	u	NC
Pentachlorophenol	< 0.0964	u	< 0.1998	u	NC
Phenanthrene	< 0.1012	u	< 0.2098	u	NC
Phenol	< 0.1163	u	< 0.2411	u	NC
Pyrene	< 0.0878	u	< 0.1821	u	NC
Pyridine	< 0.1126	u	< 0.2334	u	NC
Total Petroleum Hydrocarbons (mg/kg)					
Gasoline Range Organics (GRO)	< 0.9067	u	< 0.8717	u	NC
Diesel Range Organics (DRO)	< 1.7668	u	< 1.99	u	NC
Motor Oil Range Organics (MRO)	< 44.1696	u	< 49.7512	u	NC

Notes:

RPD = Relative percent difference; [(difference)/(average)]* 100

NC = Not calculated; RPD values were not calculated for non-detects

ug/kg-dry = micrograms per kilogram dry

mg/kg-dry = milligrams per kilogram

bold value = Field Duplicate RPD Outlier

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-5-GW		DUP01		RPD
	Sample Result		Duplicate Result		(%)
Metals (ug/l) TOTAL					
Antimony	<0.16	u	<0.16	u	NC
Arsenic	10.00	Z	10	Z	0.0
Barium	120.00	v	95	v	5.8
Beryllium	0.31	J	0.23	J	7.4
Cadmium	<0.74	u	<0.74	u	NC
Chromium	<1.2	u	<1.2	u	NC
Chromium, Hexavalent	<0.15	u	<0.15	u	NC
Cobalt	4.90	J	4.7	J	1.0
Cyanide	<10	u	<10	u	NC
Iron	1100.00	Z	540	Z	17.1
Lead	1.40	v	0.92	v	10.3
Manganese	5400.00	Z	5000	Z	NC
Mercury	<0.04	u	<0.04	u	NC
Nickel	30.00	v	29	v	NC
Selenium	0.52	J	0.53	J	0.5
Silver	4.40	J	4.40	J	0.0
Vanadium	11.00	J	9.80	J	NC
Zinc	<5.77	u	<5.77	u	NC
Water Quality (ug/l)					
Chloride	430000.00	Z	420000.00	Z	0.6
Fluoride	390.00	J	390.00	J	0.0
Sulfate	220000.00	v	220000.00	v	NC
Nitrogen, Nitrate (As N) [7]	<30.39	u	<30.39	u	NC
Nitrogen, Nitrite (As N) [7]	<27	u	<27	u	NC
Chemical Oxygen Demand	65000.00	v	66600.00	v	0.6
Metals (ug/l) DISSOLVED					
Antimony (D)	<1.95	u	<0.39	u	NC
Arsenic (D)	9.60	v	9.60	v	NC
Barium (D)	76.00	v	76.00	v	0.0
Beryllium (D)	<0.28	u	<0.28	u	NC
Cadmium (D)	<0.55	u	<0.55	u	NC
Chromium (D)	<1.53	u	<1.53	u	NC
Cobalt (D)	3.40	J	4.10	J	4.7
Iron (D)	33.00	v	29.00	v	3.2
Lead (D)	0.37	J	0.37	J	NC
Manganese (D)	4700.00	Z	4800.00	Z	0.5
Nickel (D)	21.00	v	24.00	v	3.3
Selenium (D)	0.20	J	0.37	J	14.9
Silver (D)	3.90	J	4.20	J	1.9
Vanadium (D)	8.60	J	8.20	J	1.2
Zinc (D)	11.00	v	15.00	v	NC
Volatiles (ug/l)					
1,1,1,2-Tetrachloroethane	<0.21	u	<0.21	u	NC
1,1,1-Trichloroethane	5.60	v	5.50	v	NC
1,1,2,2-Tetrachloroethane	<0.55	u	<0.55	u	NC
1,1,2-Trichloroethane	<0.22	u	0.44	J	NC
1,1-Dichloroethane	120.00	Z	120.00	v	NC
1,1-Dichloroethene	65.00	v	63.00	v	NC
1,1-Dichloropropene	<0.16	u	<0.16	u	NC
1,2,3-Trichlorobenzene	<0.3	u	<0.3	u	NC
1,2,4-Trichlorobenzene (V)	<0.2	u	<0.2	u	NC
1,2,4-Trimethylbenzene	4.60	v	4.50	v	NC
1,2-Dibromoethane (EDB)	<0.17	u	<0.17	u	NC
1,2-Dichlorobenzene (V)	<0.3	u	<0.3	u	NC
1,2-Dichloroethane (EDC)	<0.19	u	<0.19	u	NC
1,2-Dichloropropane	<0.21	u	<0.21	u	NC
1,3,5-Trimethylbenzene	0.83	J	0.83	J	NC
1,3-Dichlorobenzene (V)	<0.25	u	<0.25	u	NC
1,3-Dichloropropane	<0.2	u	<0.2	u	NC
1,4-Dichlorobenzene (V)	<0.29	u	<0.29	u	NC
1-Methylnaphthalene (V)	2.30	J	2.10	J	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-5-GW		DUP01		RPD
	Sample Result		Duplicate Result		(%)
2,2-Dichloropropane	<0.23	u	<0.23	u	NC
2-Butanone	<2.09	u	<2.09	u	NC
2-Chlorotoluene	<0.25	u	<0.25	u	NC
2-Hexanone	<1.55	u	<1.55	u	NC
2-Methylnaphthalene (V)	0.36	J	<0.35	u	NC
4-Chlorotoluene	<0.23	u	<0.23	u	NC
4-Isopropyltoluene	0.69	J	0.66	J	NC
4-Methyl-2-pentanone	2.30	J	2.30	J	NC
Acetone	<1.2	u	<1.2	u	NC
Benzene	1700.00	Z	2100.00	v	NC
Bromobenzene	<0.24	u	<0.24	u	NC
Bromodichloromethane	<0.13	u	<0.13	u	NC
Bromoform	<0.29	u	<0.29	u	NC
Bromomethane	<0.27	u	<0.27	u	NC
Carbon disulfide	<0.45	u	<0.45	u	NC
Carbon Tetrachloride	<0.14	u	<0.14	u	NC
Chlorobenzene	<0.19	u	<0.19	u	NC
Chloroethane	0.70	J	0.66	J	NC
Chloroform	<0.12	u	<0.12	u	NC
Chloromethane	<0.32	u	<0.32	u	NC
cis-1,2-DCE	32.00	v	31.00	v	NC
cis-1,3-Dichloropropene	<0.14	u	<0.14	u	NC
Dibromochloromethane	<0.24	u	<0.24	u	NC
Dibromomethane	<0.21	u	<0.21	u	NC
Dichlorodifluoromethane	<0.26	u	<0.26	u	NC
Ethylbenzene	2.30	v	2.60	v	NC
Hexachlorobutadiene (V)	<0.31	u	<0.31	u	NC
Isopropylbenzene	6.90	v	7.50	v	NC
Methyl tert-butyl ether (MTBE)	200.00	Z	200.00	v	NC
Methylene Chloride	<0.15	u	<0.15	u	NC
Naphthalene (V)	7.70	v	7.50	v	NC
n-Butylbenzene	0.38	J	0.42	J	NC
n-Propylbenzene	0.71	J	0.79	J	NC
sec-Butylbenzene	1.40	v	1.40	v	NC
Styrene	<0.19	u	<0.19	u	NC
tert-Butylbenzene	<0.21	u	<0.21	u	NC
Tetrachloroethene (PCE)	0.98	J	1.00	v	NC
Toluene	5.60	v	5.80	v	NC
trans-1,2-DCE	<0.18	u	<0.18	u	NC
trans-1,3-Dichloropropene	<0.17	u	<0.17	u	NC
Trichloroethene (TCE)	8.70	v	8.10	v	NC
Trichlorofluoromethane	<0.19	u	<0.19	u	NC
Vinyl chloride	6.40	v	6.30	v	NC
Xylenes, Total	8.10	v	8.20	v	NC
Semivolatiles (ug/l)					
1,2,4-Trichlorobenzene	<0.5	u	<0.5	u	NC
1,2-Dichlorobenzene	<0.5	u	<0.5	u	NC
1,3-Dichlorobenzene	<0.5	u	<0.5	u	NC
1,4-Dichlorobenzene	1.10	v	<0.5	u	NC
1-Methylnaphthalene	<0.5	u	0.70	v	NC
2,4,5-Trichlorophenol	<0.5	u	<0.5	u	NC
2,4,6-Trichlorophenol	<0.5	u	<0.5	u	NC
2,4-Dichlorophenol	<0.5	u	<0.5	u	NC
2,4-Dimethylphenol	<0.5	u	0.74	v	NC
2,4-Dinitrophenol	<0.5	u	<0.5	u	NC
2,4-Dinitrotoluene	<0.5	u	<0.5	u	NC
2,6-Dinitrotoluene	<0.2	u	<0.2	u	NC
2-Chloronaphthalene	<0.5	u	<0.5	u	NC
2-Chlorophenol	<0.5	u	<0.5	u	NC
2-Methylnaphthalene	<0.5	u	<0.5	u	NC
2-Methylphenol	<0.5	u	<0.5	u	NC
2-Nitroaniline	<0.5	u	<0.5	u	NC

Table A-3
Field Duplicate Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	SL-5-GW		DUP01		RPD
	Sample Result		Duplicate Result		(%)
2-Nitrophenol	<0.5	u	<0.5	u	NC
3,3´-Dichlorobenzidine	<0.5	u	<0.5	u	NC
3+4-Methylphenol	<0.5	u	<0.5	u	NC
3-Nitroaniline	<0.5	u	<0.5	u	NC
4,6-Dinitro-2-methylphenol	<0.5	u	<0.5	u	NC
4-Bromophenyl phenyl ether	<0.5	u	<0.5	u	NC
4-Chloro-3-methylphenol	<0.5	u	<0.5	u	NC
4-Chlorophenyl phenyl ether	<0.5	u	<0.5	u	NC
4-Nitroaniline	<0.5	u	<0.5	u	NC
4-Nitrophenol	<0.5	u	<0.5	u	NC
Acenaphthene	<0.5	u	<0.5	u	NC
Acenaphthylene	<0.5	u	<0.5	u	NC
Aniline	<0.5	u	<0.5	u	NC
Anthracene	<0.5	u	<0.5	u	NC
Benz(a)anthracene	<0.1	u	<0.1	u	NC
Benzo(a)pyrene	<0.1	u	<0.1	u	NC
Benzo(b)fluoranthene	<0.1	u	<0.1	u	NC
Benzo(g,h,i)perylene	<0.5	u	<0.5	u	NC
Benzo(k)fluoranthene	<0.5	u	<0.5	u	NC
Benzoic acid	<0.5	u	<0.5	u	NC
Benzyl alcohol	<0.5	u	<0.5	u	NC
Bis(2-chloroethoxy)methane	<0.5	u	<0.5	u	NC
Bis(2-chloroisopropyl)ether	<0.5	u	<0.5	u	NC
Bis(2-ethylhexyl)phthalate	<0.5	u	<0.5	u	NC
Butyl benzyl phthalate	<0.5	u	<0.5	u	NC
Carbazole	<0.5	u	<0.5	u	NC
Chrysene	<0.5	u	<0.5	u	NC
Dibenz(a,h)anthracene	<0.03	u	<0.03	u	NC
Dibenzofuran	<0.5	u	<0.5	u	NC
Diethyl phthalate	<0.5	u	<0.5	u	NC
Dimethyl phthalate	<0.5	u	<0.5	u	NC
Di-n-butyl phthalate	<0.5	u	<0.5	u	NC
Di-n-octyl phthalate	<0.5	u	<0.5	u	NC
Fluoranthene	<0.5	u	<0.5	u	NC
Fluorene	<0.5	u	<0.5	u	NC
Hexachlorobenzene	<0.5	u	<0.5	u	NC
Hexachlorobutadiene	<0.5	u	<0.5	u	NC
Hexachlorocyclopentadiene	<0.5	u	<0.5	u	NC
Hexachloroethane	<0.5	u	<0.5	u	NC
Indeno(1,2,3-cd)pyrene	<0.2	u	<0.2	u	NC
Isophorone	<0.5	u	<0.5	u	NC
Naphthalene	<0.5	u	1.5	v	NC
Nitrobenzene	<0.5	u	<0.5	u	NC
N-Nitrosodiphenylamine	<0.5	u	<0.5	u	NC
Phenanthrene	<0.5	u	<0.5	u	NC
Pentachlorophenol	<0.5	u	<0.5	u	NC
Phenol	0.98	v	0.7	v	NC
Pyrene	<0.5	u	<0.5	u	NC
Pyridine	<0.5	u	<0.5	u	NC
TPH (ug/l)					
Gasoline Range Organics (GRO)	9000.00	v	9500	v	1.4
Diesel Range Organics (DRO)	<132	u	<132	u	NC
Motor Oil Range Organics (MRO)	<2500	u	<2500	u	NC

Notes:
RPD = Relative percent difference; [(difference)/(average)]* 100
NC = Not calculated; RPD values were not calculated for non-detects
ug/kg-dry = micrograms per kilogram dry
mg/kg-dry = milligrams per kilogram
bold value = Field Duplicate RPD Outlier

Table A-4
Completeness Summary
Sanitary Lagoon Investigation Report
Marathon Petroleum Company - Gallup Refinery

	Parameter	Total Number of Results	Number of Usable Results	Percent Technical Compliance
TPH :	Diesel Range Organics (DRO)	77	77	100
	Gasoline Rang Organics (GRO)	77	77	100
	Motor Oil Range Organics (MRO)	77	77	100
VOCs:	All VOC Analytes	77	77	100
SVOCs:	All SVOC Analytes	77	77	100
Metals (total and dissolved):	All metals analytes	77	77	100

Notes:
Number of samples used in completeness calculations includes soil samples, groundwater samples, soil and groundwater field duplicates.
Percent Technical Compliance = (Number of usable results / Number of reported results) * 100

Appendix E
Analytical Data Reports

(Included on CD)

Appendix F
Photographs of Soil Cores

(Included on CD)

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

November 06, 2019

Brian Moore

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

RE: Sanitary Sewer Lagoon OrderNo.: 1910E24

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 5 sample(s) on 10/28/2019 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

ANALYTICAL REPORT

November 05, 2019

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

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1154674
Samples Received:	10/29/2019
Project Number:	
Description:	Sanitary Sewer Lagoon

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



TABLE OF CONTENTS

ONE LAB. NATIONWIDE.

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

- SL-1 (0-0.5') L1154674-01 5
- SL-1 (2-2.5') L1154674-02 6
- SL-1 (6-8') L1154674-03 7
- SL-1 (12-14') L1154674-04 8
- EB102819B L1154674-05 9

Gl: Glossary of Terms 10

Al: Accreditations & Locations 11

Sc: Sample Chain of Custody 12

SL-1 (0-0.5') L1154674-01 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 12:55	10/29/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373204	10	10/31/19 10:37	10/31/19 10:37	NY	Mt. Juliet, TN

SL-1 (2-2.5') L1154674-02 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 13:10	10/29/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373204	10	10/31/19 10:37	10/31/19 10:37	NY	Mt. Juliet, TN

SL-1 (6-8') L1154674-03 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 13:25	10/29/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373204	10	10/31/19 10:37	10/31/19 10:37	NY	Mt. Juliet, TN

SL-1 (12-14') L1154674-04 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 13:40	10/29/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373204	10	10/31/19 10:37	10/31/19 10:37	NY	Mt. Juliet, TN

EB102819B L1154674-05 GW

Collected by	Collected date/time	Received date/time
	10/28/19 13:50	10/29/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG1371740	1	10/29/19 15:35	10/29/19 15:35	NY	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.

Daphne R Richards

Daphne Richards
Project Manager

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.21	Q	10	10/31/2019 10:37	WG1373204

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.37	Q	10	10/31/2019 10:37	WG1373204

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.23	Q	10	10/31/2019 10:37	WG1373204

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.13	Q	10	10/31/2019 10:37	WG1373204

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/100ml			date / time	
E.Coli	<1	T8	1	10/29/2019 15:35	WG1371740
Coliform,Total	<1	T8	1	10/29/2019 15:35	WG1371740

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

SDG	Sample Delivery Group.
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.
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
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

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.

[1] Cp
[2] Tc
[3] Ss
[4] Cn
[5] Sr
[6] Gl
[7] Al
[8] Sc

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	LA000356
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

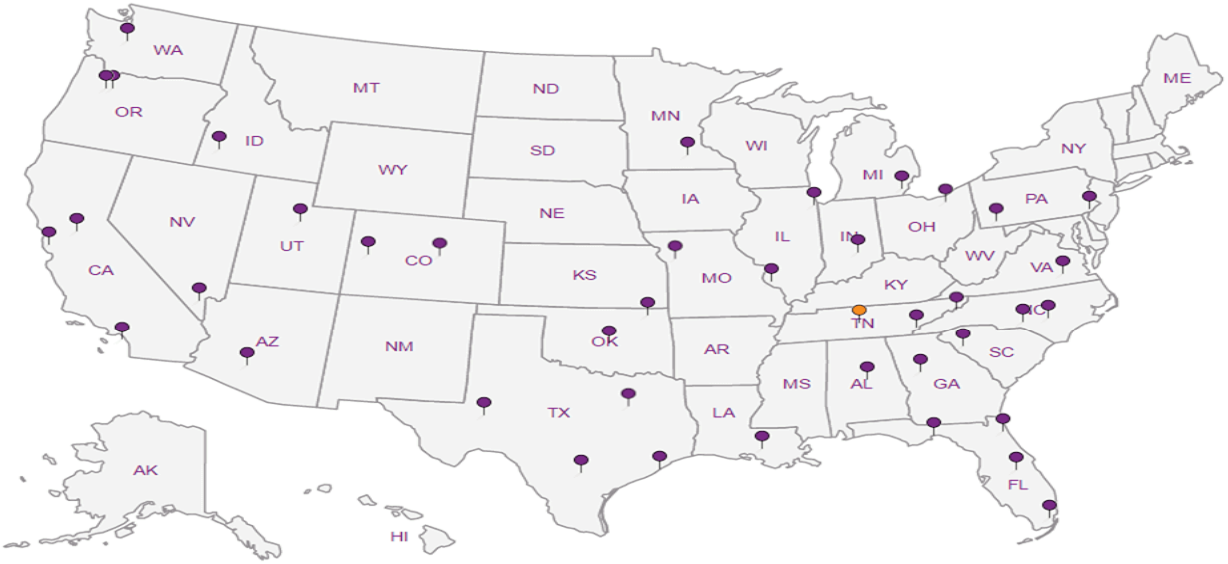
Third Party Federal Accreditations

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.



1154674

1 OF 1

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

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.	BTEX+MTBE+TMBs(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)	
10/28/19	1255	Soil	SL-1 (0-0.5')	~~100 mL 8 oz jar~~ - 1	Neat														X	X			-01
	1310		SL-1 (2-2.5')	100mL-1	NEAT														X	X			02
	1325		SL-1 (6-8')	100mL-1	NEAT														X	X			03
	~~1340~~ 1325		SL-1 (12-14')	100mL-1	NEAT														X	X			04
	1350	WATER	EB102819B	100mL-1	NEAT														X	X			05

Date	Time	Relinquished by	Received by	Date	Time
10/28/19	1415				
			JA	10-29	845

Remarks: See attached sheet for Analytical Methods and Target Analytes.

COC's

RAD SCREEN: <0.5 mR/hr 1.1-4-7.12

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANN	1154674	
Cooler Received/Opened On: 10/29/19 Temperature:	0.7	
Received By: ISSA HUSSEIN		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

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: MARATHON GALLUP Work Order Number: 1910E24 RcptNo: 1

Received By: **Anne Thorne** 10/28/2019 2:30:00 PM Anne Thorne

Completed By: **Anne Thorne** 10/28/2019 2:58:34 PM Anne Thorne

Reviewed By: AT 10/29/19

Chain of Custody

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

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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: AT 10/29/19

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:

DUE TO SHORT HOLD TIME, CLIENT SHIPPED SAMPLES DIRECTLE TO PACE TN/at 10/18/19

17. **Cooler Information**

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: X Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1910E24	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIM)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli	Air Bubbles (Y or N)
10/28/19	1255	Soil	SL-1 (0-0.5')	~~100 mL 8 oz jar~~ - 1	Neat	001													X	X	
	1310		SL-1 (2-2.5')	100mL-1	NEAT	002													X	X	
	1325		SL-1 (6-8')	100mL-1	NEAT	003													X	X	
	~~1325~~ 1340		SL-1 (12-14')	100mL-1	NEAT	004													X	X	
	1350	WATER	EB102819B	100mL-1	NEAT	005													X	X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/28/19	1415			10/28/19	1430
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

*Please send invoice & Report to Hall Environmental / 10/28/19

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

December 05, 2019

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

RE: Sanitary Sewer Lagoon OrderNo.: 1910E91

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 5 sample(s) on 10/30/2019 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: Marathon
Client Sample ID: SL-1 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 12:55:00 PM
Lab ID: 1910E91-001
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	670	4.4	22		mg/Kg	2	11/4/2019 4:29:33 PM	48543
Motor Oil Range Organics (MRO)	440	110	110		mg/Kg	2	11/4/2019 4:29:33 PM	48543
Surr: DNOP	107	0	70-130		%Rec	2	11/4/2019 4:29:33 PM	48543
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.3	4.2		mg/Kg	1	11/4/2019 10:46:37 AM	G64209
Surr: BFB	94.6	0	77.4-118		%Rec	1	11/4/2019 10:46:37 AM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	4.0	1.5	1.5		mg/Kg	5	11/6/2019 10:45:50 AM	48614
Chloride	450	30	30		mg/Kg	20	11/6/2019 10:58:15 AM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 10:45:50 AM	48614
Nitrogen, Nitrate (As N)	6.9	1.5	1.5		mg/Kg	5	11/6/2019 10:45:50 AM	48614
Sulfate	1800	30	30		mg/Kg	20	11/6/2019 10:58:15 AM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.32	0.0037	0.066		mg/Kg	2	11/7/2019 5:58:10 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.75	5.1		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Arsenic	3.7	2.9	5.1	J	mg/Kg	2	11/20/2019 5:42:25 PM	48626
Barium	340	0.047	0.20		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Beryllium	0.95	0.019	0.30		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Chromium	11	0.16	0.61		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Cobalt	4.1	0.21	0.61		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Iron	13000	74	250		mg/Kg	100	11/20/2019 5:55:01 PM	48626
Lead	17	0.49	0.51		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Manganese	330	0.042	0.20		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Nickel	8.3	0.30	1.0		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Selenium	ND	2.5	5.1		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Silver	ND	0.065	0.51		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Vanadium	18	0.14	5.1		mg/Kg	2	11/20/2019 5:42:25 PM	48626
Zinc	85	0.80	5.1		mg/Kg	2	11/20/2019 5:42:25 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Acenaphthylene	ND	1.0	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Aniline	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Anthracene	ND	1.0	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Azobenzene	ND	1.3	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Benz(a)anthracene	ND	0.90	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 12:55:00 PM
Lab ID: 1910E91-001
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.83	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Benzo(b)fluoranthene	ND	0.82	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Benzo(g,h,i)perylene	ND	0.80	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Benzo(k)fluoranthene	ND	0.85	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Benzoic acid	ND	0.96	4.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Benzyl alcohol	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Bis(2-chloroethoxy)methane	ND	1.4	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Bis(2-chloroethyl)ether	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Bis(2-chloroisopropyl)ether	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Bis(2-ethylhexyl)phthalate	ND	1.3	4.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
4-Bromophenyl phenyl ether	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Butyl benzyl phthalate	ND	0.95	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Carbazole	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
4-Chloro-3-methylphenol	ND	1.4	4.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
4-Chloroaniline	ND	1.3	4.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2-Chloronaphthalene	ND	1.2	2.3	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2-Chlorophenol	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
4-Chlorophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Chrysene	ND	0.82	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Di-n-butyl phthalate	ND	1.4	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Di-n-octyl phthalate	ND	0.95	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Dibenz(a,h)anthracene	ND	0.85	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Dibenzofuran	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
1,2-Dichlorobenzene	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
1,3-Dichlorobenzene	ND	0.98	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
1,4-Dichlorobenzene	ND	0.99	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
3,3´-Dichlorobenzidine	ND	0.83	2.3	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Diethyl phthalate	ND	1.3	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Dimethyl phthalate	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2,4-Dichlorophenol	ND	1.1	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2,4-Dimethylphenol	ND	1.0	2.8	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.86	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2,4-Dinitrophenol	ND	0.68	4.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2,4-Dinitrotoluene	ND	1.1	4.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2,6-Dinitrotoluene	ND	1.2	4.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Fluoranthene	ND	1.0	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Fluorene	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Hexachlorobenzene	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Hexachlorobutadiene	ND	1.3	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 12:55:00 PM
Lab ID: 1910E91-001
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Hexachloroethane	ND	1.0	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.93	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Isophorone	ND	1.4	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
1-Methylnaphthalene	ND	1.4	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2-Methylnaphthalene	ND	1.4	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2-Methylphenol	ND	1.1	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
3+4-Methylphenol	ND	1.1	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
N-Nitrosodi-n-propylamine	ND	1.3	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
N-Nitrosodiphenylamine	ND	0.98	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Naphthalene	ND	1.4	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2-Nitroaniline	ND	1.3	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
3-Nitroaniline	ND	1.3	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
4-Nitroaniline	ND	1.2	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Nitrobenzene	ND	1.3	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2-Nitrophenol	ND	1.3	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
4-Nitrophenol	ND	1.3	2.3	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Pentachlorophenol	ND	0.96	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Phenanthrene	ND	1.0	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Phenol	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Pyrene	ND	0.87	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Pyridine	ND	1.1	3.7	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
1,2,4-Trichlorobenzene	ND	1.4	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2,4,5-Trichlorophenol	ND	1.2	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
2,4,6-Trichlorophenol	ND	0.98	1.9	D	mg/Kg	1	11/8/2019 5:14:21 PM	48536
Surr: 2-Fluorophenol	0		26.7-85.9	SD	%Rec	1	11/8/2019 5:14:21 PM	48536
Surr: Phenol-d5	0		18.5-101	SD	%Rec	1	11/8/2019 5:14:21 PM	48536
Surr: 2,4,6-Tribromophenol	0		35.8-85.6	SD	%Rec	1	11/8/2019 5:14:21 PM	48536
Surr: Nitrobenzene-d5	0		40.8-95.2	SD	%Rec	1	11/8/2019 5:14:21 PM	48536
Surr: 2-Fluorobiphenyl	0		34.7-85.2	SD	%Rec	1	11/8/2019 5:14:21 PM	48536
Surr: 4-Terphenyl-d14	0		37.4-91.3	SD	%Rec	1	11/8/2019 5:14:21 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0035	0.021		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Toluene	ND	0.0040	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Ethylbenzene	ND	0.0025	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Methyl tert-butyl ether (MTBE)	ND	0.010	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2,4-Trimethylbenzene	0.013	0.0039	0.042	J	mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,3,5-Trimethylbenzene	ND	0.0041	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2-Dichloroethane (EDC)	ND	0.0043	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 12:55:00 PM
Lab ID: 1910E91-001 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0038	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Naphthalene	ND	0.0084	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1-Methylnaphthalene	0.031	0.024	0.17	J	mg/Kg	1	10/31/2019 5:43:12 PM	S64139
2-Methylnaphthalene	0.023	0.018	0.17	J	mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Acetone	ND	0.035	0.63		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Bromobenzene	ND	0.0040	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Bromodichloromethane	ND	0.0038	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Bromoform	ND	0.0038	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Bromomethane	ND	0.010	0.13		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
2-Butanone	0.063	0.049	0.42	J	mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Carbon disulfide	ND	0.014	0.42		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Carbon tetrachloride	ND	0.0040	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Chlorobenzene	ND	0.0054	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Chloroethane	ND	0.0062	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Chloroform	ND	0.0034	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Chloromethane	ND	0.0040	0.13		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
2-Chlorotoluene	ND	0.0037	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
4-Chlorotoluene	ND	0.0035	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
cis-1,2-DCE	ND	0.0058	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
cis-1,3-Dichloropropene	ND	0.0036	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2-Dibromo-3-chloropropane	ND	0.0043	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Dibromochloromethane	ND	0.0030	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Dibromomethane	ND	0.0045	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2-Dichlorobenzene	ND	0.0035	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,3-Dichlorobenzene	ND	0.0037	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,4-Dichlorobenzene	0.020	0.0035	0.042	J	mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Dichlorodifluoromethane	ND	0.0098	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,1-Dichloroethane	ND	0.0027	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,1-Dichloroethene	ND	0.017	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2-Dichloropropane	ND	0.0031	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,3-Dichloropropane	ND	0.0046	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
2,2-Dichloropropane	ND	0.014	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,1-Dichloropropene	ND	0.0038	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Hexachlorobutadiene	ND	0.0043	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
2-Hexanone	ND	0.0070	0.42		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Isopropylbenzene	ND	0.0030	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
4-Isopropyltoluene	ND	0.0035	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
4-Methyl-2-pentanone	ND	0.0080	0.42		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Methylene chloride	0.011	0.0075	0.13	J	mg/Kg	1	10/31/2019 5:43:12 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 12:55:00 PM
Lab ID: 1910E91-001
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0039	0.13		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
n-Propylbenzene	ND	0.0034	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
sec-Butylbenzene	ND	0.0048	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Styrene	ND	0.0033	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
tert-Butylbenzene	ND	0.0040	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,1,1,2-Tetrachloroethane	ND	0.0028	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,1,2,2-Tetrachloroethane	ND	0.0043	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Tetrachloroethene (PCE)	ND	0.0034	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
trans-1,2-DCE	ND	0.0039	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
trans-1,3-Dichloropropene	ND	0.0045	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2,3-Trichlorobenzene	ND	0.0037	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2,4-Trichlorobenzene	ND	0.0043	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,1,1-Trichloroethane	ND	0.0038	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,1,2-Trichloroethane	ND	0.0030	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Trichloroethene (TCE)	ND	0.0049	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Trichlorofluoromethane	ND	0.014	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
1,2,3-Trichloropropane	ND	0.0068	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Vinyl chloride	ND	0.0028	0.042		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Xylenes, Total	ND	0.011	0.084		mg/Kg	1	10/31/2019 5:43:12 PM	S64139
Surr: Dibromofluoromethane	107		70-130		%Rec	1	10/31/2019 5:43:12 PM	S64139
Surr: 1,2-Dichloroethane-d4	91.2		70-130		%Rec	1	10/31/2019 5:43:12 PM	S64139
Surr: Toluene-d8	97.5		70-130		%Rec	1	10/31/2019 5:43:12 PM	S64139
Surr: 4-Bromofluorobenzene	88.4		70-130		%Rec	1	10/31/2019 5:43:12 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:10:00 PM
Lab ID: 1910E91-002 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	240	2.0	9.8		mg/Kg	1	11/4/2019 10:02:17 AM	48543
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg	1	11/4/2019 10:02:17 AM	48543
Surr: DNOP	102	0	70-130		%Rec	1	11/4/2019 10:02:17 AM	48543
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	42	4.4	15		mg/Kg	5	11/4/2019 11:09:39 AM	G64209
Surr: BFB	184	0	77.4-118	S	%Rec	5	11/4/2019 11:09:39 AM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	5.0	1.5	1.5		mg/Kg	5	11/6/2019 11:10:40 AM	48614
Chloride	96	7.5	7.5		mg/Kg	5	11/6/2019 11:10:40 AM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 11:10:40 AM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 11:10:40 AM	48614
Sulfate	230	7.5	7.5		mg/Kg	5	11/6/2019 11:10:40 AM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0025	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:13:14 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.71	4.8		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Arsenic	ND	2.8	4.8		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Barium	220	0.045	0.19		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Beryllium	1.0	0.018	0.29		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Cadmium	ND	0.047	0.19		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Chromium	8.3	0.15	0.58		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Cobalt	4.6	0.20	0.58		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Iron	13000	70	240		mg/Kg	100	11/20/2019 5:58:12 PM	48626
Lead	5.7	0.47	0.48		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Manganese	250	0.040	0.19		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Nickel	8.4	0.29	0.97		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Selenium	ND	2.4	4.8		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Silver	ND	0.062	0.48		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Vanadium	15	0.13	4.8		mg/Kg	2	11/20/2019 6:31:44 PM	48626
Zinc	17	0.77	4.8		mg/Kg	2	11/20/2019 6:31:44 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Acenaphthylene	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Aniline	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Anthracene	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Azobenzene	ND	0.13	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Benz(a)anthracene	ND	0.091	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:10:00 PM
Lab ID: 1910E91-002
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.084	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Benzo(b)fluoranthene	ND	0.084	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Benzo(g,h,i)perylene	ND	0.081	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Benzo(k)fluoranthene	ND	0.086	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Benzoic acid	ND	0.098	0.47		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Bis(2-chloroethyl)ether	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Bis(2-ethylhexyl)phthalate	ND	0.14	0.47		mg/Kg	1	11/8/2019 5:43:04 PM	48536
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Butyl benzyl phthalate	ND	0.097	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Carbazole	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
4-Chloro-3-methylphenol	ND	0.15	0.47		mg/Kg	1	11/8/2019 5:43:04 PM	48536
4-Chloroaniline	ND	0.13	0.47		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2-Chloronaphthalene	ND	0.12	0.24		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
4-Chlorophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Chrysene	ND	0.084	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Di-n-butyl phthalate	0.20	0.14	0.38	J	mg/Kg	1	11/8/2019 5:43:04 PM	48536
Di-n-octyl phthalate	ND	0.097	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Dibenz(a,h)anthracene	ND	0.086	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Dibenzofuran	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
1,2-Dichlorobenzene	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
1,3-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
1,4-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
3,3´-Dichlorobenzidine	ND	0.084	0.24		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Diethyl phthalate	ND	0.14	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Dimethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2,4-Dichlorophenol	ND	0.11	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2,4-Dimethylphenol	ND	0.10	0.28		mg/Kg	1	11/8/2019 5:43:04 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.088	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2,4-Dinitrophenol	ND	0.069	0.47		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2,6-Dinitrotoluene	ND	0.12	0.47		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Fluoranthene	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Fluorene	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:10:00 PM
Lab ID: 1910E91-002 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Hexachloroethane	ND	0.11	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.094	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Isophorone	ND	0.14	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
1-Methylnaphthalene	0.73	0.14	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2-Methylphenol	ND	0.11	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
3+4-Methylphenol	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
N-Nitrosodi-n-propylamine	ND	0.14	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
N-Nitrosodiphenylamine	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Naphthalene	0.22	0.14	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2-Nitroaniline	ND	0.14	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
4-Nitroaniline	ND	0.12	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Nitrobenzene	ND	0.13	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
4-Nitrophenol	ND	0.13	0.24		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Pentachlorophenol	ND	0.098	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Phenol	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Pyrene	ND	0.089	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Pyridine	ND	0.11	0.38		mg/Kg	1	11/8/2019 5:43:04 PM	48536
1,2,4-Trichlorobenzene	ND	0.15	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
2,4,6-Trichlorophenol	ND	0.10	0.19		mg/Kg	1	11/8/2019 5:43:04 PM	48536
Surr: 2-Fluorophenol	78.0		26.7-85.9		%Rec	1	11/8/2019 5:43:04 PM	48536
Surr: Phenol-d5	77.6		18.5-101		%Rec	1	11/8/2019 5:43:04 PM	48536
Surr: 2,4,6-Tribromophenol	80.6		35.8-85.6		%Rec	1	11/8/2019 5:43:04 PM	48536
Surr: Nitrobenzene-d5	102		40.8-95.2	S	%Rec	1	11/8/2019 5:43:04 PM	48536
Surr: 2-Fluorobiphenyl	73.2		34.7-85.2		%Rec	1	11/8/2019 5:43:04 PM	48536
Surr: 4-Terphenyl-d14	66.5		37.4-91.3		%Rec	1	11/8/2019 5:43:04 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	0.023	0.0024	0.015		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Toluene	ND	0.0028	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Ethylbenzene	0.41	0.0017	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Methyl tert-butyl ether (MTBE)	ND	0.0069	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2,4-Trimethylbenzene	2.2	0.0027	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,3,5-Trimethylbenzene	0.43	0.0028	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2-Dichloroethane (EDC)	ND	0.0030	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:10:00 PM
Lab ID: 1910E91-002 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0026	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Naphthalene	0.19	0.0058	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1-Methylnaphthalene	0.19	0.017	0.12		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
2-Methylnaphthalene	0.040	0.013	0.12	J	mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Acetone	ND	0.024	0.44		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Bromobenzene	ND	0.0028	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Bromodichloromethane	ND	0.0026	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Bromoform	ND	0.0026	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Bromomethane	ND	0.0070	0.087		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
2-Butanone	ND	0.034	0.29		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Carbon disulfide	ND	0.0096	0.29		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Carbon tetrachloride	ND	0.0028	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Chlorobenzene	ND	0.0037	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Chloroethane	ND	0.0043	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Chloroform	ND	0.0023	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Chloromethane	ND	0.0028	0.087		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
2-Chlorotoluene	ND	0.0025	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
4-Chlorotoluene	ND	0.0024	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
cis-1,2-DCE	ND	0.0040	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
cis-1,3-Dichloropropene	ND	0.0024	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2-Dibromo-3-chloropropane	ND	0.0030	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Dibromochloromethane	ND	0.0021	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Dibromomethane	ND	0.0031	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,3-Dichlorobenzene	ND	0.0025	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,4-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Dichlorodifluoromethane	ND	0.0067	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,1-Dichloroethane	ND	0.0019	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,1-Dichloroethene	ND	0.012	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2-Dichloropropane	ND	0.0021	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,3-Dichloropropane	ND	0.0031	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
2,2-Dichloropropane	ND	0.0094	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,1-Dichloropropene	ND	0.0026	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Hexachlorobutadiene	ND	0.0030	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
2-Hexanone	ND	0.0048	0.29		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Isopropylbenzene	0.16	0.0021	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
4-Isopropyltoluene	0.12	0.0024	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
4-Methyl-2-pentanone	ND	0.0055	0.29		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Methylene chloride	0.0075	0.0051	0.087	J	mg/Kg	1	10/31/2019 7:11:03 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:10:00 PM
Lab ID: 1910E91-002 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	0.23	0.0027	0.087		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
n-Propylbenzene	0.38	0.0023	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
sec-Butylbenzene	0.16	0.0033	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Styrene	ND	0.0023	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
tert-Butylbenzene	ND	0.0027	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,1,1,2-Tetrachloroethane	ND	0.0020	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,1,2,2-Tetrachloroethane	ND	0.0029	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Tetrachloroethene (PCE)	ND	0.0023	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
trans-1,2-DCE	ND	0.0027	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
trans-1,3-Dichloropropene	ND	0.0031	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2,3-Trichlorobenzene	ND	0.0025	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2,4-Trichlorobenzene	ND	0.0029	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,1,1-Trichloroethane	ND	0.0026	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,1,2-Trichloroethane	ND	0.0020	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Trichloroethene (TCE)	ND	0.0034	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Trichlorofluoromethane	ND	0.0099	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
1,2,3-Trichloropropane	ND	0.0047	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Vinyl chloride	ND	0.0019	0.029		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Xylenes, Total	1.6	0.0073	0.058		mg/Kg	1	10/31/2019 7:11:03 PM	S64139
Surr: Dibromofluoromethane	106		70-130		%Rec	1	10/31/2019 7:11:03 PM	S64139
Surr: 1,2-Dichloroethane-d4	92.5		70-130		%Rec	1	10/31/2019 7:11:03 PM	S64139
Surr: Toluene-d8	95.3		70-130		%Rec	1	10/31/2019 7:11:03 PM	S64139
Surr: 4-Bromofluorobenzene	109		70-130		%Rec	1	10/31/2019 7:11:03 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:25:00 PM
Lab ID: 1910E91-003
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	2.6	2.0	10	J	mg/Kg	1	11/4/2019 10:11:27 AM	48543
Motor Oil Range Organics (MRO)	ND	51	51		mg/Kg	1	11/4/2019 10:11:27 AM	48543
Surr: DNOP	106	0	70-130		%Rec	1	11/4/2019 10:11:27 AM	48543
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.93	3.1		mg/Kg	1	11/4/2019 11:32:42 AM	G64209
Surr: BFB	95.7	0	77.4-118		%Rec	1	11/4/2019 11:32:42 AM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/6/2019 11:35:29 AM	48614
Chloride	66	7.5	7.5		mg/Kg	5	11/6/2019 11:35:29 AM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 11:35:29 AM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 11:35:29 AM	48614
Sulfate	18	7.5	7.5		mg/Kg	5	11/6/2019 11:35:29 AM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0021	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:15:17 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.73	5.0		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Arsenic	ND	2.8	5.0		mg/Kg	2	11/20/2019 6:33:10 PM	48626
Barium	170	0.046	0.20		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Beryllium	0.79	0.018	0.30		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Cadmium	ND	0.048	0.20		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Chromium	6.2	0.16	0.60		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Cobalt	3.6	0.21	0.60		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Iron	11000	72	250		mg/Kg	100	11/20/2019 6:01:34 PM	48626
Lead	3.0	0.48	0.50		mg/Kg	2	11/20/2019 6:33:10 PM	48626
Manganese	250	0.041	0.20		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Nickel	6.5	0.30	1.0		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Selenium	ND	2.5	5.0		mg/Kg	2	11/20/2019 6:33:10 PM	48626
Silver	ND	0.064	0.50		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Vanadium	13	0.13	5.0		mg/Kg	2	11/20/2019 5:59:58 PM	48626
Zinc	11	0.79	5.0		mg/Kg	2	11/20/2019 5:59:58 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Acenaphthylene	ND	0.097	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Aniline	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Anthracene	ND	0.095	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Azobenzene	ND	0.12	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Benz(a)anthracene	ND	0.085	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:25:00 PM
Lab ID: 1910E91-003
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.079	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Benzo(b)fluoranthene	ND	0.078	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Benzo(g,h,i)perylene	ND	0.076	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Benzo(k)fluoranthene	ND	0.080	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Benzoic acid	ND	0.091	0.44		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Benzyl alcohol	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Bis(2-chloroethoxy)methane	ND	0.13	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Bis(2-chloroethyl)ether	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.10	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Bis(2-ethylhexyl)phthalate	ND	0.13	0.44		mg/Kg	1	11/8/2019 6:11:52 PM	48536
4-Bromophenyl phenyl ether	ND	0.10	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Butyl benzyl phthalate	ND	0.090	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Carbazole	ND	0.10	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
4-Chloro-3-methylphenol	ND	0.14	0.44		mg/Kg	1	11/8/2019 6:11:52 PM	48536
4-Chloroaniline	ND	0.13	0.44		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2-Chloronaphthalene	ND	0.11	0.22		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2-Chlorophenol	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
4-Chlorophenyl phenyl ether	ND	0.096	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Chrysene	ND	0.078	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Di-n-butyl phthalate	ND	0.13	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Di-n-octyl phthalate	ND	0.090	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Dibenz(a,h)anthracene	ND	0.080	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Dibenzofuran	ND	0.12	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
1,2-Dichlorobenzene	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
1,3-Dichlorobenzene	ND	0.093	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
1,4-Dichlorobenzene	ND	0.094	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
3,3´-Dichlorobenzidine	ND	0.079	0.22		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Diethyl phthalate	ND	0.13	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Dimethyl phthalate	ND	0.12	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2,4-Dichlorophenol	ND	0.10	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2,4-Dimethylphenol	ND	0.097	0.27		mg/Kg	1	11/8/2019 6:11:52 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.082	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2,4-Dinitrophenol	ND	0.064	0.44		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2,4-Dinitrotoluene	ND	0.10	0.44		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2,6-Dinitrotoluene	ND	0.12	0.44		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Fluoranthene	ND	0.099	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Fluorene	ND	0.10	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Hexachlorobenzene	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Hexachlorobutadiene	ND	0.12	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:25:00 PM
Lab ID: 1910E91-003 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.10	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Hexachloroethane	ND	0.099	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.088	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Isophorone	ND	0.13	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
1-Methylnaphthalene	ND	0.13	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2-Methylnaphthalene	ND	0.13	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2-Methylphenol	ND	0.10	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
3+4-Methylphenol	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
N-Nitrosodi-n-propylamine	ND	0.13	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
N-Nitrosodiphenylamine	ND	0.093	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Naphthalene	ND	0.13	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2-Nitroaniline	ND	0.13	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
3-Nitroaniline	ND	0.12	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
4-Nitroaniline	ND	0.11	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Nitrobenzene	ND	0.12	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2-Nitrophenol	ND	0.12	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
4-Nitrophenol	ND	0.12	0.22		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Pentachlorophenol	ND	0.091	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Phenanthrene	ND	0.096	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Phenol	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Pyrene	ND	0.083	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Pyridine	ND	0.11	0.35		mg/Kg	1	11/8/2019 6:11:52 PM	48536
1,2,4-Trichlorobenzene	ND	0.14	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2,4,5-Trichlorophenol	ND	0.11	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
2,4,6-Trichlorophenol	ND	0.093	0.18		mg/Kg	1	11/8/2019 6:11:52 PM	48536
Surr: 2-Fluorophenol	62.0		26.7-85.9		%Rec	1	11/8/2019 6:11:52 PM	48536
Surr: Phenol-d5	67.8		18.5-101		%Rec	1	11/8/2019 6:11:52 PM	48536
Surr: 2,4,6-Tribromophenol	70.6		35.8-85.6		%Rec	1	11/8/2019 6:11:52 PM	48536
Surr: Nitrobenzene-d5	70.4		40.8-95.2		%Rec	1	11/8/2019 6:11:52 PM	48536
Surr: 2-Fluorobiphenyl	72.2		34.7-85.2		%Rec	1	11/8/2019 6:11:52 PM	48536
Surr: 4-Terphenyl-d14	74.3		37.4-91.3		%Rec	1	11/8/2019 6:11:52 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	0.0048	0.0025	0.015	J	mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Toluene	ND	0.0029	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Ethylbenzene	ND	0.0018	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Methyl tert-butyl ether (MTBE)	ND	0.0073	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2,4-Trimethylbenzene	0.0085	0.0028	0.031	J	mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,3,5-Trimethylbenzene	ND	0.0030	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2-Dichloroethane (EDC)	ND	0.0031	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:25:00 PM
Lab ID: 1910E91-003 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0028	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Naphthalene	ND	0.0062	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1-Methylnaphthalene	0.019	0.018	0.12	J	mg/Kg	1	10/31/2019 7:40:17 PM	S64139
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Acetone	ND	0.026	0.46		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Bromobenzene	ND	0.0030	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Bromodichloromethane	ND	0.0028	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Bromoform	ND	0.0028	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Bromomethane	ND	0.0074	0.092		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
2-Butanone	0.070	0.036	0.31	J	mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Carbon disulfide	ND	0.010	0.31		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Carbon tetrachloride	ND	0.0029	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Chlorobenzene	ND	0.0039	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Chloroethane	ND	0.0045	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Chloroform	ND	0.0025	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Chloromethane	ND	0.0029	0.092		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
2-Chlorotoluene	ND	0.0027	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
4-Chlorotoluene	ND	0.0025	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
cis-1,2-DCE	ND	0.0042	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
cis-1,3-Dichloropropene	ND	0.0026	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2-Dibromo-3-chloropropane	ND	0.0032	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Dibromochloromethane	ND	0.0022	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Dibromomethane	ND	0.0033	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2-Dichlorobenzene	ND	0.0025	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,3-Dichlorobenzene	ND	0.0027	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,4-Dichlorobenzene	ND	0.0026	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Dichlorodifluoromethane	ND	0.0071	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,1-Dichloroethane	ND	0.0020	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,1-Dichloroethene	ND	0.012	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2-Dichloropropane	ND	0.0022	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,3-Dichloropropane	ND	0.0033	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
2,2-Dichloropropane	ND	0.010	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,1-Dichloropropene	ND	0.0028	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Hexachlorobutadiene	ND	0.0031	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
2-Hexanone	ND	0.0051	0.31		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Isopropylbenzene	ND	0.0022	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
4-Isopropyltoluene	ND	0.0025	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
4-Methyl-2-pentanone	ND	0.0058	0.31		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Methylene chloride	0.0084	0.0054	0.092	J	mg/Kg	1	10/31/2019 7:40:17 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:25:00 PM
Lab ID: 1910E91-003
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0029	0.092		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
n-Propylbenzene	ND	0.0025	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
sec-Butylbenzene	ND	0.0035	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Styrene	ND	0.0024	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
tert-Butylbenzene	ND	0.0029	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,1,1,2-Tetrachloroethane	ND	0.0021	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,1,2,2-Tetrachloroethane	ND	0.0031	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Tetrachloroethene (PCE)	ND	0.0025	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
trans-1,2-DCE	ND	0.0028	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
trans-1,3-Dichloropropene	ND	0.0033	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2,3-Trichlorobenzene	ND	0.0027	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2,4-Trichlorobenzene	ND	0.0031	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,1,1-Trichloroethane	ND	0.0028	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,1,2-Trichloroethane	ND	0.0022	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Trichloroethene (TCE)	ND	0.0036	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Trichlorofluoromethane	ND	0.010	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
1,2,3-Trichloropropane	ND	0.0050	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Vinyl chloride	ND	0.0020	0.031		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Xylenes, Total	ND	0.0078	0.062		mg/Kg	1	10/31/2019 7:40:17 PM	S64139
Surr: Dibromofluoromethane	106		70-130		%Rec	1	10/31/2019 7:40:17 PM	S64139
Surr: 1,2-Dichloroethane-d4	92.9		70-130		%Rec	1	10/31/2019 7:40:17 PM	S64139
Surr: Toluene-d8	97.7		70-130		%Rec	1	10/31/2019 7:40:17 PM	S64139
Surr: 4-Bromofluorobenzene	91.7		70-130		%Rec	1	10/31/2019 7:40:17 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:40:00 PM
Lab ID: 1910E91-004 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	2.3	2.1	10	J	mg/Kg	1	11/4/2019 10:20:37 AM	48543
Motor Oil Range Organics (MRO)	ND	51	51		mg/Kg	1	11/4/2019 10:20:37 AM	48543
Surr: DNOP	92.7	0	70-130		%Rec	1	11/4/2019 10:20:37 AM	48543
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.94	3.1		mg/Kg	1	11/4/2019 12:41:48 PM	G64209
Surr: BFB	94.1	0	77.4-118		%Rec	1	11/4/2019 12:41:48 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/6/2019 12:25:06 PM	48614
Chloride	40	7.5	7.5		mg/Kg	5	11/6/2019 12:25:06 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 12:25:06 PM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 12:25:06 PM	48614
Sulfate	25	7.5	7.5		mg/Kg	5	11/6/2019 12:25:06 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0024	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:17:21 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Arsenic	ND	2.9	5.0		mg/Kg	2	11/20/2019 6:34:35 PM	48626
Barium	250	0.047	0.20		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Beryllium	0.98	0.019	0.30		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Chromium	11	0.16	0.60		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Cobalt	5.0	0.21	0.60		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Iron	17000	73	250		mg/Kg	100	11/20/2019 6:04:55 PM	48626
Lead	2.2	0.49	0.50		mg/Kg	2	11/20/2019 6:34:35 PM	48626
Manganese	660	2.1	10		mg/Kg	100	11/20/2019 6:04:55 PM	48626
Nickel	12	0.30	1.0		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Selenium	ND	2.5	5.0		mg/Kg	2	11/20/2019 6:34:35 PM	48626
Silver	ND	0.065	0.50		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Vanadium	15	0.13	5.0		mg/Kg	2	11/20/2019 6:03:20 PM	48626
Zinc	16	0.80	5.0		mg/Kg	2	11/20/2019 6:03:20 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Aniline	ND	0.13	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Anthracene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Benz(a)anthracene	ND	0.096	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:40:00 PM
Lab ID: 1910E91-004
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.089	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Benzo(b)fluoranthene	ND	0.088	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Benzo(g,h,i)perylene	ND	0.086	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Benzo(k)fluoranthene	ND	0.091	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Benzoic acid	ND	0.10	0.50		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Bis(2-ethylhexyl)phthalate	ND	0.14	0.50		mg/Kg	1	11/8/2019 6:40:39 PM	48536
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Carbazole	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
4-Chloro-3-methylphenol	ND	0.15	0.50		mg/Kg	1	11/8/2019 6:40:39 PM	48536
4-Chloroaniline	ND	0.14	0.50		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2-Chloronaphthalene	ND	0.12	0.25		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Chrysene	ND	0.088	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Di-n-butyl phthalate	ND	0.15	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Di-n-octyl phthalate	ND	0.10	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Dibenz(a,h)anthracene	ND	0.091	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
1,3-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
1,4-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
3,3´-Dichlorobenzidine	ND	0.089	0.25		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2,4-Dichlorophenol	ND	0.12	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg	1	11/8/2019 6:40:39 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.092	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2,4-Dinitrophenol	ND	0.073	0.50		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2,6-Dinitrotoluene	ND	0.13	0.50		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Fluorene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:40:00 PM
Lab ID: 1910E91-004
Matrix: SOIL
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.10	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Isophorone	ND	0.15	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2-Methylphenol	ND	0.12	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
N-Nitrosodiphenylamine	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Nitrobenzene	ND	0.14	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2-Nitrophenol	ND	0.14	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
4-Nitrophenol	ND	0.14	0.25		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Pentachlorophenol	ND	0.10	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Phenol	ND	0.12	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Pyrene	ND	0.094	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Pyridine	ND	0.12	0.40		mg/Kg	1	11/8/2019 6:40:39 PM	48536
1,2,4-Trichlorobenzene	ND	0.16	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
2,4,6-Trichlorophenol	ND	0.11	0.20		mg/Kg	1	11/8/2019 6:40:39 PM	48536
Surr: 2-Fluorophenol	46.6		26.7-85.9		%Rec	1	11/8/2019 6:40:39 PM	48536
Surr: Phenol-d5	50.0		18.5-101		%Rec	1	11/8/2019 6:40:39 PM	48536
Surr: 2,4,6-Tribromophenol	60.2		35.8-85.6		%Rec	1	11/8/2019 6:40:39 PM	48536
Surr: Nitrobenzene-d5	51.1		40.8-95.2		%Rec	1	11/8/2019 6:40:39 PM	48536
Surr: 2-Fluorobiphenyl	57.1		34.7-85.2		%Rec	1	11/8/2019 6:40:39 PM	48536
Surr: 4-Terphenyl-d14	60.4		37.4-91.3		%Rec	1	11/8/2019 6:40:39 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0025	0.015		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Toluene	ND	0.0030	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Ethylbenzene	ND	0.0018	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Methyl tert-butyl ether (MTBE)	ND	0.0073	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2,4-Trimethylbenzene	ND	0.0028	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,3,5-Trimethylbenzene	ND	0.0030	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2-Dichloroethane (EDC)	ND	0.0032	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:40:00 PM
Lab ID: 1910E91-004 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0028	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Naphthalene	ND	0.0062	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1-Methylnaphthalene	ND	0.018	0.12		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
2-Methylnaphthalene	ND	0.014	0.12		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Acetone	ND	0.026	0.46		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Bromobenzene	ND	0.0030	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Bromodichloromethane	ND	0.0028	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Bromoform	ND	0.0028	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Bromomethane	ND	0.0075	0.093		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
2-Butanone	ND	0.036	0.31		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Carbon disulfide	ND	0.010	0.31		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Carbon tetrachloride	ND	0.0029	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Chlorobenzene	ND	0.0040	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Chloroethane	ND	0.0046	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Chloroform	ND	0.0025	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Chloromethane	ND	0.0030	0.093		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
2-Chlorotoluene	ND	0.0027	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
4-Chlorotoluene	ND	0.0025	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
cis-1,2-DCE	ND	0.0042	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
cis-1,3-Dichloropropene	ND	0.0026	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2-Dibromo-3-chloropropane	ND	0.0032	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Dibromochloromethane	ND	0.0022	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Dibromomethane	ND	0.0033	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2-Dichlorobenzene	ND	0.0025	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,3-Dichlorobenzene	ND	0.0027	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,4-Dichlorobenzene	ND	0.0026	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Dichlorodifluoromethane	ND	0.0072	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,1-Dichloroethane	ND	0.0020	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,1-Dichloroethene	ND	0.012	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2-Dichloropropane	ND	0.0023	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,3-Dichloropropane	ND	0.0034	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
2,2-Dichloropropane	ND	0.010	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,1-Dichloropropene	ND	0.0028	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Hexachlorobutadiene	ND	0.0032	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
2-Hexanone	ND	0.0051	0.31		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Isopropylbenzene	ND	0.0022	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
4-Isopropyltoluene	ND	0.0026	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
4-Methyl-2-pentanone	ND	0.0059	0.31		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Methylene chloride	ND	0.0055	0.093		mg/Kg	1	10/31/2019 8:09:30 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-1 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 1:40:00 PM
Lab ID: 1910E91-004 **Matrix:** SOIL **Received Date:** 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0029	0.093		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
n-Propylbenzene	ND	0.0025	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
sec-Butylbenzene	ND	0.0035	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Styrene	ND	0.0024	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
tert-Butylbenzene	ND	0.0029	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,1,1,2-Tetrachloroethane	ND	0.0021	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,1,2,2-Tetrachloroethane	ND	0.0031	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Tetrachloroethene (PCE)	ND	0.0025	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
trans-1,2-DCE	ND	0.0028	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
trans-1,3-Dichloropropene	ND	0.0033	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2,3-Trichlorobenzene	ND	0.0027	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2,4-Trichlorobenzene	ND	0.0031	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,1,1-Trichloroethane	ND	0.0028	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,1,2-Trichloroethane	ND	0.0022	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Trichloroethene (TCE)	ND	0.0036	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Trichlorofluoromethane	ND	0.011	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
1,2,3-Trichloropropane	ND	0.0050	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Vinyl chloride	ND	0.0020	0.031		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Xylenes, Total	ND	0.0078	0.062		mg/Kg	1	10/31/2019 8:09:30 PM	S64139
Surr: Dibromofluoromethane	105		70-130		%Rec	1	10/31/2019 8:09:30 PM	S64139
Surr: 1,2-Dichloroethane-d4	91.0		70-130		%Rec	1	10/31/2019 8:09:30 PM	S64139
Surr: Toluene-d8	98.1		70-130		%Rec	1	10/31/2019 8:09:30 PM	S64139
Surr: 4-Bromofluorobenzene	94.1		70-130		%Rec	1	10/31/2019 8:09:30 PM	S64139

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102819
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 3:00:00 PM
Lab ID: 1910E91-005
Matrix: AQUEOUS
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/5/2019 5:16:19 PM	48575
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/5/2019 5:16:19 PM	48575
Surr: DNOP	101	0	81.5-152		%Rec	1	11/5/2019 5:16:19 PM	48575
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	ND	0.14	0.50		mg/L	5	11/1/2019 9:06:58 PM	R64185
Chloride	ND	2.5	2.5		mg/L	5	11/1/2019 9:06:58 PM	R64185
Sulfate	0.43	0.33	2.5	J	mg/L	5	11/1/2019 9:06:58 PM	R64185
Nitrate+Nitrite as N	0.25	0.048	1.0	J	mg/L	5	11/1/2019 10:33:21 PM	R64185
EPA METHOD 7470: MERCURY							Analyst: **rde**	
Mercury	0.00010	0.000038	0.00020	J	mg/L	1	11/8/2019 3:07:09 PM	48664
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **pmf**	
Antimony	ND	0.0081	0.050		mg/L	1	11/14/2019 5:14:55 PM	48511
Arsenic	ND	0.015	0.020		mg/L	1	11/25/2019 4:18:23 PM	48511
Barium	ND	0.0012	0.020		mg/L	1	11/13/2019 7:54:39 PM	48511
Beryllium	ND	0.00025	0.0030		mg/L	1	11/13/2019 7:54:39 PM	48511
Cadmium	ND	0.00055	0.0020		mg/L	1	11/13/2019 7:54:39 PM	48511
Chromium	ND	0.00086	0.0060		mg/L	1	11/13/2019 7:54:39 PM	48511
Cobalt	ND	0.0012	0.0060		mg/L	1	11/14/2019 5:14:55 PM	48511
Iron	0.0095	0.0093	0.020	J	mg/L	1	11/13/2019 7:54:39 PM	48511
Lead	ND	0.0035	0.0050		mg/L	1	11/13/2019 7:54:39 PM	48511
Manganese	ND	0.00041	0.0020		mg/L	1	11/14/2019 5:14:55 PM	48511
Nickel	ND	0.0028	0.010		mg/L	1	11/13/2019 7:54:39 PM	48511
Selenium	ND	0.035	0.050		mg/L	1	11/13/2019 7:54:39 PM	48511
Silver	ND	0.00055	0.0050		mg/L	1	11/13/2019 7:54:39 PM	48511
Vanadium	ND	0.00086	0.050		mg/L	1	11/13/2019 7:54:39 PM	48511
Zinc	ND	0.011	0.020		mg/L	1	11/13/2019 7:54:39 PM	48511
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Acenaphthylene	ND	2.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Aniline	ND	3.6	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Anthracene	ND	2.7	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Azobenzene	ND	3.3	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Benz(a)anthracene	ND	3.6	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Benzo(a)pyrene	ND	3.5	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	11/4/2019 11:32:40 AM	48505

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102819
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 3:00:00 PM
Lab ID: 1910E91-005
Matrix: AQUEOUS
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzoic acid	ND	11	20		µg/L	1	11/4/2019 11:32:40 AM	48505
Benzyl alcohol	ND	2.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	11/4/2019 11:32:40 AM	48505
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Carbazole	ND	2.9	10		µg/L	1	11/4/2019 11:32:40 AM	48505
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
4-Chloroaniline	ND	2.3	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2-Chloronaphthalene	ND	3.1	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2-Chlorophenol	ND	2.7	10		µg/L	1	11/4/2019 11:32:40 AM	48505
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Chrysene	ND	2.8	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Dibenzofuran	ND	3.2	10		µg/L	1	11/4/2019 11:32:40 AM	48505
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	11/4/2019 11:32:40 AM	48505
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	11/4/2019 11:32:40 AM	48505
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
3,3´-Dichlorobenzidine	ND	2.8	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Diethyl phthalate	ND	2.9	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Dimethyl phthalate	ND	3.2	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	11/4/2019 11:32:40 AM	48505
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	11/4/2019 11:32:40 AM	48505
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	11/4/2019 11:32:40 AM	48505
2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Fluoranthene	ND	2.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Fluorene	ND	2.9	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Hexachlorobenzene	ND	3.1	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Hexachlorobutadiene	ND	4.7	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Hexachloroethane	ND	4.8	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Isophorone	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102819
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 3:00:00 PM
Lab ID: 1910E91-005
Matrix: AQUEOUS
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
1-Methylnaphthalene	ND	3.1	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2-Methylnaphthalene	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2-Methylphenol	ND	2.9	10		µg/L	1	11/4/2019 11:32:40 AM	48505
3+4-Methylphenol	ND	3.6	10		µg/L	1	11/4/2019 11:32:40 AM	48505
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	11/4/2019 11:32:40 AM	48505
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Naphthalene	ND	4.1	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2-Nitroaniline	ND	3.2	10		µg/L	1	11/4/2019 11:32:40 AM	48505
3-Nitroaniline	ND	3.2	10		µg/L	1	11/4/2019 11:32:40 AM	48505
4-Nitroaniline	ND	2.7	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Nitrobenzene	ND	2.8	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2-Nitrophenol	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
4-Nitrophenol	ND	7.6	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Pentachlorophenol	ND	2.7	20		µg/L	1	11/4/2019 11:32:40 AM	48505
Phenanthrene	ND	2.8	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Phenol	ND	8.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Pyrene	ND	2.5	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Pyridine	ND	9.6	10		µg/L	1	11/4/2019 11:32:40 AM	48505
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	11/4/2019 11:32:40 AM	48505
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	11/4/2019 11:32:40 AM	48505
Surr: 2-Fluorophenol	50.6	0	15-101		%Rec	1	11/4/2019 11:32:40 AM	48505
Surr: Phenol-d5	38.2	0	15-84.6		%Rec	1	11/4/2019 11:32:40 AM	48505
Surr: 2,4,6-Tribromophenol	66.8	0	27.8-112		%Rec	1	11/4/2019 11:32:40 AM	48505
Surr: Nitrobenzene-d5	74.4	0	33-113		%Rec	1	11/4/2019 11:32:40 AM	48505
Surr: 2-Fluorobiphenyl	66.1	0	26.6-107		%Rec	1	11/4/2019 11:32:40 AM	48505
Surr: 4-Terphenyl-d14	61.9	0	18.7-148		%Rec	1	11/4/2019 11:32:40 AM	48505
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.17	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Toluene	ND	0.35	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Ethylbenzene	ND	0.13	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Naphthalene	ND	0.28	2.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	10/31/2019 9:07:46 PM	W6413

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102819
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 3:00:00 PM
Lab ID: 1910E91-005
Matrix: AQUEOUS
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Acetone	ND	1.2	10		µg/L	1	10/31/2019 9:07:46 PM	W6413
Bromobenzene	ND	0.24	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Bromodichloromethane	ND	0.13	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Bromoform	ND	0.29	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Bromomethane	ND	0.27	3.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
2-Butanone	ND	2.1	10		µg/L	1	10/31/2019 9:07:46 PM	W6413
Carbon disulfide	ND	0.45	10		µg/L	1	10/31/2019 9:07:46 PM	W6413
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Chlorobenzene	ND	0.19	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Chloroethane	ND	0.18	2.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Chloroform	ND	0.12	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Chloromethane	ND	0.32	3.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Dibromochloromethane	ND	0.24	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Dibromomethane	ND	0.21	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
2-Hexanone	ND	1.5	10		µg/L	1	10/31/2019 9:07:46 PM	W6413
Isopropylbenzene	ND	0.19	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	10/31/2019 9:07:46 PM	W6413
Methylene Chloride	ND	0.15	3.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
n-Butylbenzene	ND	0.23	3.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
n-Propylbenzene	ND	0.21	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102819
Project: Sanitary Sewer Lagoon
Collection Date: 10/28/2019 3:00:00 PM
Lab ID: 1910E91-005
Matrix: AQUEOUS
Received Date: 10/30/2019 7:20:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Styrene	ND	0.19	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Vinyl chloride	ND	0.18	1.0		µg/L	1	10/31/2019 9:07:46 PM	W6413
Xylenes, Total	ND	0.45	1.5		µg/L	1	10/31/2019 9:07:46 PM	W6413
Surr: 1,2-Dichloroethane-d4	91.2	0	70-130		%Rec	1	10/31/2019 9:07:46 PM	W6413
Surr: 4-Bromofluorobenzene	90.0	0	70-130		%Rec	1	10/31/2019 9:07:46 PM	W6413
Surr: Dibromofluoromethane	104	0	70-130		%Rec	1	10/31/2019 9:07:46 PM	W6413
Surr: Toluene-d8	98.8	0	70-130		%Rec	1	10/31/2019 9:07:46 PM	W6413
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.019	0.050		mg/L	1	11/5/2019 5:48:18 AM	G64230
Surr: BFB	93.1	0	70-130		%Rec	1	11/5/2019 5:48:18 AM	G64230

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

Qualifiers:

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 08, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1156084

Samples Received: 11/01/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

1910E91-001B SL-1 (0-0.5') L1156084-01 5

1910E91-002B SL-1 (2-2.5') L1156084-02 6

1910E91-003B SL-1 (6-8') L1156084-03 7

1910E91-004B SL-1 (12-14') L1156084-04 8

1910E91-005F EB102819 L1156084-05 9

1910E91-005G EB102819 L1156084-06 10

Qc: Quality Control Summary 11

Wet Chemistry by Method 4500CN E-2011 11

Wet Chemistry by Method 7199 12

Wet Chemistry by Method 9012B 14

Gl: Glossary of Terms 15

Al: Accreditations & Locations 16

Sc: Sample Chain of Custody 17

1910E91-001B SL-1 (0-0.5') L1156084-01 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 12:55	11/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 15:21	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:23	JER	Mt. Juliet, TN

1910E91-002B SL-1 (2-2.5') L1156084-02 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 13:10	11/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 15:31	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:25	JER	Mt. Juliet, TN

1910E91-003B SL-1 (6-8') L1156084-03 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 13:25	11/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 16:07	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:28	JER	Mt. Juliet, TN

1910E91-004B SL-1 (12-14') L1156084-04 Solid

Collected by	Collected date/time	Received date/time
	10/28/19 13:40	11/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 16:13	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:29	JER	Mt. Juliet, TN

1910E91-005F EB102819 L1156084-05 GW

Collected by	Collected date/time	Received date/time
	10/28/19 15:00	11/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374137	1	11/05/19 01:34	11/05/19 01:34	GB	Mt. Juliet, TN

1910E91-005G EB102819 L1156084-06 GW

Collected by	Collected date/time	Received date/time
	10/28/19 15:00	11/01/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1376852	1	11/07/19 23:02	11/08/19 10:58	JER	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Hexavalent Chromium	ND		1.00	1	11/07/2019 15:21	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	0.609	P1	0.250	1	11/06/2019 18:23	WG1375561

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	ND	J6	1.00	1	11/07/2019 15:31	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	ND	J6	0.250	1	11/06/2019 18:25	WG1375561

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Hexavalent Chromium	ND		1.00	1	11/07/2019 16:07	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	11/06/2019 18:28	WG1375561

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Hexavalent Chromium	ND		1.00	1	11/07/2019 16:13	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	11/06/2019 18:29	WG1375561

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hexavalent Chromium	ND		0.000500	1	11/05/2019 01:34	WG1374137

Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Cyanide	ND	J6	0.00500	1	11/08/2019 10:58	WG1376852

Method Blank (MB)

(MB) R3469875-1 11/08/19 10:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

L1156058-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1156058-02 11/08/19 10:55 • (DUP) R3469875-5 11/08/19 10:56

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

L1156108-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1156108-02 11/08/19 11:08 • (DUP) R3469875-8 11/08/19 11:09

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3469875-2 11/08/19 10:43

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	0.100	0.0914	91.4	85.0-115	

L1156035-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156035-02 11/08/19 10:48 • (MS) R3469875-3 11/08/19 10:49 • (MSD) R3469875-4 11/08/19 10:51

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 %
Cyanide	0.100	ND	0.0595	0.0713	59.5	71.3	1	75.0-125	J6	J6	18.0	20

L1156084-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156084-06 11/08/19 10:58 • (MS) R3469875-6 11/08/19 10:59 • (MSD) R3469875-7 11/08/19 11:00

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 %
Cyanide	0.100	ND	0.0761	0.0636	76.1	63.6	1	75.0-125		J6	17.9	20

Method Blank (MB)

(MB) R3468364-3 11/04/19 22:09

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1155565-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1155565-01 11/04/19 22:51 • (DUP) R3468364-4 11/04/19 22:59

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	0.000	1	0.000		20

L1156114-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156114-01 11/05/19 01:57 • (DUP) R3468364-8 11/05/19 02:04

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3468364-2 11/04/19 22:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	0.00200	0.00180	90.0	90.0-110	

L1156040-07 Original Sample (OS) • Matrix Spike (MS)

(OS) L1156040-07 11/04/19 23:07 • (MS) R3468364-5 11/04/19 23:14

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	0.0500	U	0.0504	101	1	90.0-110	

L1156040-18 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156040-18 11/05/19 00:50 • (MS) R3468364-6 11/05/19 00:58 • (MSD) R3468364-7 11/05/19 01:05

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 %
Hexavalent Chromium	0.0500	0.000342	0.0512	0.0511	102	102	1	90.0-110			0.199	20

Method Blank (MB)

(MB) R3469578-1 11/07/19 13:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L1156501-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1156501-04 11/07/19 14:18 • (DUP) R3469578-3 11/07/19 14:24

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

L1156084-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156084-01 11/07/19 15:21 • (DUP) R3469578-4 11/07/19 15:26

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3469578-2 11/07/19 13:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1156084-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156084-02 11/07/19 15:31 • (MS) R3469578-5 11/07/19 15:36 • (MSD) R3469578-6 11/07/19 15:41

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 %
Hexavalent Chromium	20.0	ND	13.8	13.7	69.1	68.5	1	75.0-125	J6	J6	0.880	20

L1156084-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1156084-02 11/07/19 15:31 • (MS) R3469578-7 11/07/19 15:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	720	ND	624	86.7	50	75.0-125	

Method Blank (MB)

(MB) R3469205-1 11/06/19 18:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1156084-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156084-01 11/06/19 18:23 • (DUP) R3469205-3 11/06/19 18:24

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	0.609	0.881	1	36.4	P1	20

L1156467-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156467-01 11/06/19 18:35 • (DUP) R3469205-6 11/06/19 18:36

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	0.213	0.285	1	28.7	P1	20

Laboratory Control Sample (LCS)

(LCS) R3469205-2 11/06/19 18:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.46	98.6	50.0-150	

L1156084-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156084-02 11/06/19 18:25 • (MS) R3469205-4 11/06/19 18:26 • (MSD) R3469205-5 11/06/19 18:27

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 %
Cyanide	1.67	ND	1.19	1.27	71.4	76.4	1	75.0-125	J6		6.71	20

L1156467-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156467-02 11/06/19 18:37 • (MS) R3469205-7 11/06/19 18:38 • (MSD) R3469205-8 11/06/19 18:39

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 %
Cyanide	1.67	0.0557	1.35	1.39	77.6	80.3	1	75.0-125			3.29	20

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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

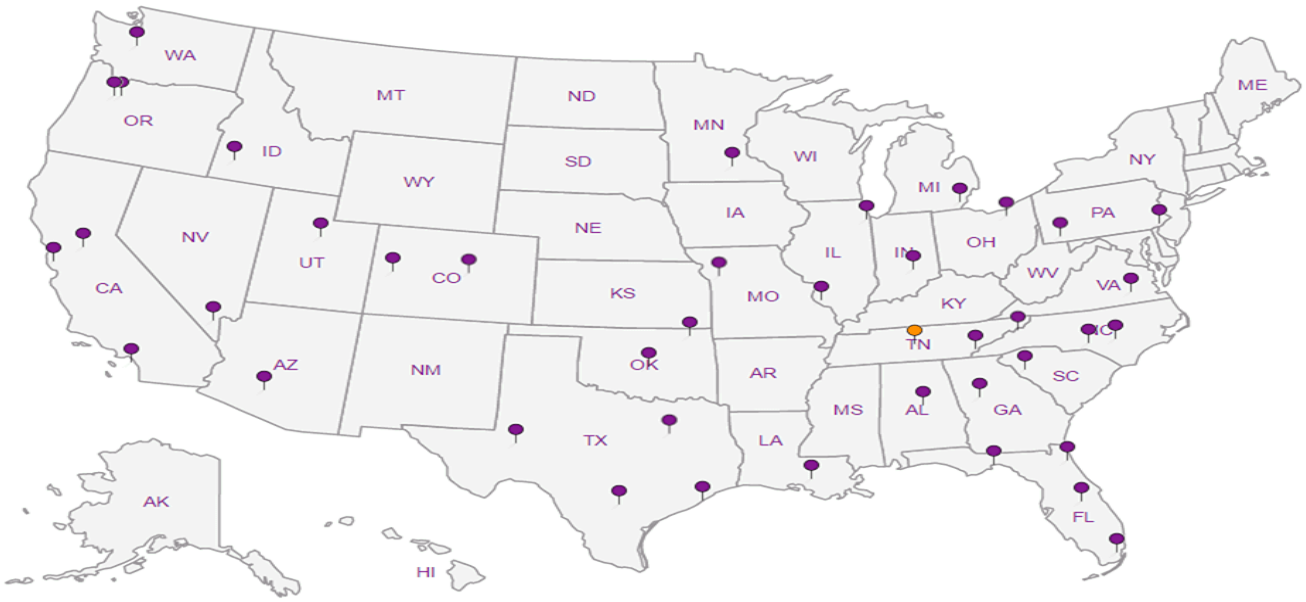
Third Party Federal Accreditations

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.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR:	**ESC PACE**	COMPANY: **ESC PACE**	PHONE: **(800) 767-5859**	FAX: **(615) 758-5859**	
ADDRESS:	**12065 Lebanon Rd**		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	**Mt. Juliet, TN 37122**				

L1156084

G105

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	1910E91-001B	SL-1 (0-0.5')	4OZGU	Soil	10/28/2019 12:55:00 PM	1	Lv. 4 Total CN and Cr6	-01
2	1910E91-002B	SL-1 (2-2.5')	4OZGU	Soil	10/28/2019 1:10:00 PM	1	Lv. 4 Total CN and Cr6	-02
3	1910E91-003B	SL-1 (6-8')	4OZGU	Soil	10/28/2019 1:25:00 PM	1	Lv. 4 Total CN and Cr6	-03
4	1910E91-004B	SL-1 (12-14')	4OZGU	Soil	10/28/2019 1:40:00 PM	1	Lv. 4 Total CN and Cr6	-04
5	1910E91-005F	EB102819	120mL	Aqueous	10/28/2019 3:00:00 PM	1	Lv.4 Cr6	-05
6	1910E91-005G	EB102819	500AMBHDPE-NAOH	Aqueous	10/28/2019 3:00:00 PM	1	Lv.4 Total CN for GW >12	-06

RAD SCREEN: <0.5 mR/hr

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By:	Date: 10/30/2019	Time: 9:06 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: W Taylor	Date: 11/1/19	Time: 8:45

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

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 2.2+.2=2.4 °C 2C Attempt to Cool ?
Comments: COC#5

Tracking # 9570 1669 1609

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	L1196084	
Cooler Received/Opened On: 11 / 1 /19 Temperature: 2.4		
Received By: Willie Taylor 8:45		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48614**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200565** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: **LCS-48614**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200566** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	110	90	110			
Chloride	15	1.5	15.00	0	99.5	90	110			
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	96.5	90	110			
Nitrogen, Nitrate (As N)	7.8	0.30	7.500	0	104	90	110			
Sulfate	30	1.5	30.00	0	98.8	90	110			

Sample ID: **1910E91-004AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-1 (12-14')**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200578** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.1	1.5	1.500	0	139	15	137			S
Chloride	62	7.5	15.00	39.61	150	54	141			S
Nitrogen, Nitrite (As N)	2.6	1.5	3.000	0	85.9	69.3	117			
Nitrogen, Nitrate (As N)	7.3	1.5	7.500	0	97.9	54.4	142			
Sulfate	58	7.5	30.00	25.43	107	16.1	153			

Sample ID: **1910E91-004AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-1 (12-14')**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200579** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.1	1.5	1.500	0	138	15	138	0.667	20	S
Chloride	59	7.5	15.00	39.61	126	54.5	140	5.77	20	
Nitrogen, Nitrite (As N)	2.6	1.5	3.000	0	86.0	69.5	116	0.142	20	
Nitrogen, Nitrate (As N)	7.3	1.5	7.500	0	97.3	54.8	141	0.601	20	
Sulfate	53	7.5	30.00	25.43	93.3	16.6	153	7.62	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64185**	RunNo: **64185**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196273** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: **LCS-B**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64185**	RunNo: **64185**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196276** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	104	90	110			
Nitrate+Nitrite as N	3.7	0.20	3.500	0	105	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48575**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **LCSW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198351**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.40	2.500	0	95.2	82	138			
Surr: DNOP	0.23		0.2500		91.6	81.5	152			

Sample ID: **MB-48575**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **PBW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198352**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.51		0.5000		102	81.5	152			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48543**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **48543**	RunNo: **64192**
Prep Date: **11/1/2019**	Analysis Date: **11/4/2019**	SeqNo: **2196675** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	70	130			

Sample ID: **LCS-48543**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **48543**	RunNo: **64227**
Prep Date: **11/1/2019**	Analysis Date: **11/4/2019**	SeqNo: **2197911** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.0	63.9	124			
Surr: DNOP	4.3		5.000		85.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197088** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	77.4	118			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197089** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.0	80	120			
Surr: BFB	1100		1000		114	77.4	118			

Sample ID: **1910E91-003AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SL-1 (6-8')**	Batch ID: **G64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197093** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	17	3.1	15.38	0	110	69.1	142			
Surr: BFB	680		615.4		110	77.4	118			

Sample ID: **1910E91-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SL-1 (6-8')**	Batch ID: **G64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197094** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	3.1	15.38	0	138	69.1	142	22.6	20	R
Surr: BFB	690		615.4		113	77.4	118	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **S64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194696** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **S64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194696** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: 1,2-Dichloroethane-d4	0.46		0.5000		92.2	70	130			
Surr: Toluene-d8	0.46		0.5000		92.1	70	130			
Surr: 4-Bromofluorobenzene	0.41		0.5000		82.9	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **S64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194697** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	105	68	135			
Toluene	0.92	0.050	1.000	0	91.8	70	130			
Chlorobenzene	0.88	0.050	1.000	0	88.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **S64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194697** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.92	0.050	1.000	0	92.5	51.1	139			
Trichloroethene (TCE)	0.92	0.050	1.000	0	91.5	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		94.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.8	70	130			
Surr: Toluene-d8	0.46		0.5000		91.2	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		86.7	70	130			

Sample ID: **1910e91-001ams**	SampType: **MS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SL-1 (0-0.5')**	Batch ID: **S64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194699** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.021	0.8439	0	101	57.1	141			
Toluene	0.76	0.042	0.8439	0	89.8	70	130			
Chlorobenzene	0.76	0.042	0.8439	0	90.1	70	130			
1,1-Dichloroethene	0.81	0.042	0.8439	0	96.1	38.5	141			
Trichloroethene (TCE)	0.78	0.042	0.8439	0	92.9	70	130			
Surr: Dibromofluoromethane	0.40		0.4220		94.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.40		0.4220		94.6	70	130			
Surr: Toluene-d8	0.38		0.4220		89.6	70	130			
Surr: 4-Bromofluorobenzene	0.37		0.4220		88.3	70	130			

Sample ID: **1910e91-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SL-1 (0-0.5')**	Batch ID: **S64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194700** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.81	0.021	0.8439	0	96.2	57.1	141	4.43	20	
Toluene	0.78	0.042	0.8439	0	92.0	70	130	2.43	20	
Chlorobenzene	0.75	0.042	0.8439	0	88.4	70	130	1.91	20	
1,1-Dichloroethene	0.78	0.042	0.8439	0	92.6	38.5	141	3.77	20	
Trichloroethene (TCE)	0.75	0.042	0.8439	0	89.2	70	130	4.05	20	
Surr: Dibromofluoromethane	0.39		0.4220		93.3	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.39		0.4220		92.7	70	130	0	0	
Surr: Toluene-d8	0.40		0.4220		94.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.39		0.4220		93.3	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194686** 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.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194686** 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	9.2		10.00		92.2	70	130			
Surr: 4-Bromofluorobenzene	8.3		10.00		82.9	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.2		10.00		92.1	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194687** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	18	1.0	20.00	0	91.8	70	130			
Chlorobenzene	18	1.0	20.00	0	88.1	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W64139**	RunNo: **64139**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194687** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	18	1.0	20.00	0	92.5	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		89.8	70	130			
Surr: 4-Bromofluorobenzene	8.7		10.00		86.7	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	9.1		10.00		91.2	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64267**
Prep Date: **11/1/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199508** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	0.00064	0.20								J
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	0.014	0.20								J
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	0.14	0.50								J
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.20	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	0.12	0.20								J
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64267**
Prep Date: **11/1/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199508** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	0.028	0.20								J
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	0.0044	0.20								J
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.1		3.330		63.6	26.7	85.9			
Surr: Phenol-d5	2.2		3.330		67.0	18.5	101			
Surr: 2,4,6-Tribromophenol	1.6		3.330		48.6	35.8	85.6			
Surr: Nitrobenzene-d5	1.1		1.670		63.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	0.90		1.670		54.0	34.7	85.2			
Surr: 4-Terphenyl-d14	0.98		1.670		58.6	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64325**
Prep Date: **11/1/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201376** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.22	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64325**
Prep Date: **11/1/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201376** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.2		3.330		65.2	26.7	85.9			
Surr: Phenol-d5	2.3		3.330		68.3	18.5	101			
Surr: 2,4,6-Tribromophenol	2.3		3.330		69.8	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		71.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		72.0	34.7	85.2			
Surr: 4-Terphenyl-d14	1.1		1.670		65.8	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48536** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS** Batch ID: **48536** RunNo: **64325**
Prep Date: **11/1/2019** Analysis Date: **11/7/2019** SeqNo: **2201377** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.20	1.670	0	73.9	46	89.5			
4-Chloro-3-methylphenol	2.7	0.50	3.330	0	80.7	44.1	101			
2-Chlorophenol	2.2	0.20	3.330	0	67.4	47	91			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	64.7	41.4	85.8			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	63.5	37.4	82			
N-Nitrosodi-n-propylamine	1.2	0.20	1.670	0	71.2	47.8	92.9			
4-Nitrophenol	2.5	0.25	3.330	0	73.8	45	94.3			
Pentachlorophenol	2.3	0.40	3.330	0	69.9	31.7	76.9			
Phenol	2.4	0.20	3.330	0	70.9	49.4	92.5			
Pyrene	1.3	0.20	1.670	0	75.3	52.9	82.7			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	73.4	43.6	98.1			
Surr: 2-Fluorophenol	2.1		3.330		62.1	26.7	85.9			
Surr: Phenol-d5	2.2		3.330		67.2	18.5	101			
Surr: 2,4,6-Tribromophenol	2.5		3.330		76.3	35.8	85.6			
Surr: Nitrobenzene-d5	1.3		1.670		75.3	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		74.2	34.7	85.2			
Surr: 4-Terphenyl-d14	1.2		1.670		72.6	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48505**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48505**	RunNo: **64172**
Prep Date: **10/31/2019**	Analysis Date: **11/2/2019**	SeqNo: **2195943** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	22	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48505**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48505**	RunNo: **64172**
Prep Date: **10/31/2019**	Analysis Date: **11/2/2019**	SeqNo: **2195943** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	87		200.0		43.7	15	101			
Surr: Phenol-d5	71		200.0		35.7	15	84.6			
Surr: 2,4,6-Tribromophenol	120		200.0		62.1	27.8	112			
Surr: Nitrobenzene-d5	62		100.0		62.0	33	113			
Surr: 2-Fluorobiphenyl	55		100.0		55.3	26.6	107			
Surr: 4-Terphenyl-d14	48		100.0		48.3	18.7	148			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48505**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **48505**	RunNo: **64172**
Prep Date: **10/31/2019**	Analysis Date: **11/2/2019**	SeqNo: **2195944** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	70	10	100.0	0	69.7	32.2	94			
4-Chloro-3-methylphenol	150	10	200.0	0	73.8	37.7	101			
2-Chlorophenol	130	10	200.0	0	63.3	32.6	90.1			
1,4-Dichlorobenzene	54	10	100.0	0	54.1	30	87.2			
2,4-Dinitrotoluene	66	10	100.0	0	65.9	35.9	85.8			
N-Nitrosodi-n-propylamine	73	10	100.0	0	72.5	37.1	108			
4-Nitrophenol	90	10	200.0	0	45.0	22.4	86.6			
Pentachlorophenol	120	20	200.0	0	62.5	31.6	91			
Phenol	82	10	200.0	0	41.0	21.7	84.9			
Pyrene	73	10	100.0	0	72.7	46.3	103			
1,2,4-Trichlorobenzene	61	10	100.0	0	60.6	30.2	88.3			
Surr: 2-Fluorophenol	89		200.0		44.4	15	101			
Surr: Phenol-d5	76		200.0		38.2	15	84.6			
Surr: 2,4,6-Tribromophenol	140		200.0		68.0	27.8	112			
Surr: Nitrobenzene-d5	65		100.0		65.2	33	113			
Surr: 2-Fluorobiphenyl	64		100.0		63.7	26.6	107			
Surr: 4-Terphenyl-d14	59		100.0		58.5	18.7	148			

Sample ID: **lcsd-48505**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48505**	RunNo: **64172**
Prep Date: **10/31/2019**	Analysis Date: **11/2/2019**	SeqNo: **2195945** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	52	10	100.0	0	51.9	32.2	94	29.2	32.9	
4-Chloro-3-methylphenol	110	10	200.0	0	57.0	37.7	101	25.7	29.9	
2-Chlorophenol	89	10	200.0	0	44.4	32.6	90.1	35.0	28.5	R
1,4-Dichlorobenzene	38	10	100.0	0	38.4	15	87.2	34.1	44.9	
2,4-Dinitrotoluene	51	10	100.0	0	51.4	35.9	85.8	24.8	28.5	
N-Nitrosodi-n-propylamine	50	10	100.0	0	50.0	37.1	108	36.7	29.9	R
4-Nitrophenol	72	10	200.0	0	36.1	15	86.6	21.9	68	
Pentachlorophenol	97	20	200.0	0	48.5	31.6	91	25.1	39.5	
Phenol	57	10	200.0	0	28.6	15	84.9	35.5	44.2	
Pyrene	61	10	100.0	0	61.2	46.3	103	17.1	23.8	
1,2,4-Trichlorobenzene	45	10	100.0	0	44.9	15.7	88.3	29.8	38	
Surr: 2-Fluorophenol	62		200.0		31.2	15	101	0	0	
Surr: Phenol-d5	53		200.0		26.4	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	110		200.0		54.5	27.8	112	0	0	
Surr: Nitrobenzene-d5	47		100.0		47.0	33	113	0	0	
Surr: 2-Fluorobiphenyl	44		100.0		44.2	26.6	107	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcsd-48505**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48505**	RunNo: **64172**
Prep Date: **10/31/2019**	Analysis Date: **11/2/2019**	SeqNo: **2195945** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	59		100.0		58.8	18.7	148	0	0	

Sample ID: **MB-48505**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48505**	RunNo: **64213**
Prep Date: **10/31/2019**	Analysis Date: **11/4/2019**	SeqNo: **2197265** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	0.89	10								J
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	3.9	10								J
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	0.28	10								J
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	3.0	10								J
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48505**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48505**	RunNo: **64213**
Prep Date: **10/31/2019**	Analysis Date: **11/4/2019**	SeqNo: **2197265** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	2.1	10								J
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48505** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW** Batch ID: **48505** RunNo: **64213**
Prep Date: **10/31/2019** Analysis Date: **11/4/2019** SeqNo: **2197265** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	86		200.0		42.8	15	101			
Surr: Phenol-d5	67		200.0		33.6	15	84.6			
Surr: 2,4,6-Tribromophenol	130		200.0		64.0	27.8	112			
Surr: Nitrobenzene-d5	59		100.0		58.9	33	113			
Surr: 2-Fluorobiphenyl	55		100.0		55.4	26.6	107			
Surr: 4-Terphenyl-d14	50		100.0		50.2	18.7	148			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48648**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **48648**	RunNo: **64322**
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201157** Units: **mg/Kg**

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

Sample ID: **LCSLL-48648**	SampType: **LCSLL**	TestCode: **EPA Method 7471: Mercury**
Client ID: **BatchQC**	Batch ID: **48648**	RunNo: **64322**
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201158** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.033	0.006660	0	79.0	70	130			J

Sample ID: **LCS-48648**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **48648**	RunNo: **64322**
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201159** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	97.6	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48664**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **48664**	RunNo: **64358**
Prep Date: **11/7/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202576** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00012	0.00020								J

Sample ID: **LCS-48664**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **48664**	RunNo: **64358**
Prep Date: **11/7/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202577** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	93.6	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48626**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48626**	RunNo: **64473**
Prep Date: **11/6/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207237** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	0.034	0.10								J
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	1.9	2.5								J
Lead	ND	0.25								
Manganese	0.029	0.10								J
Nickel	0.19	0.50								J
Selenium	ND	2.5								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	0.46	2.5								J

Sample ID: **LCS-48626**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48626**	RunNo: **64473**
Prep Date: **11/6/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207241** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	24	2.5	25.00	0	94.6	80	120			
Barium	23	0.10	25.00	0	93.9	80	120			
Beryllium	24	0.15	25.00	0	94.7	80	120			
Cadmium	24	0.10	25.00	0	95.1	80	120			
Chromium	23	0.30	25.00	0	93.5	80	120			
Cobalt	24	0.30	25.00	0	94.2	80	120			
Iron	26	2.5	25.00	0	102	80	120			
Lead	24	0.25	25.00	0	96.4	80	120			
Manganese	24	0.10	25.00	0	94.2	80	120			
Nickel	23	0.50	25.00	0	93.4	80	120			
Selenium	20	2.5	25.00	0	81.3	80	120			
Silver	4.8	0.25	5.000	0	95.0	80	120			
Vanadium	24	2.5	25.00	0	94.7	80	120			
Zinc	24	2.5	25.00	0	94.5	80	120			

Sample ID: **1910E91-001AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-1 (0-0.5')**	Batch ID: **48626**	RunNo: **64665**
Prep Date: **11/6/2019**	Analysis Date: **11/20/2019**	SeqNo: **2215394** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **1910E91-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-1 (0-0.5')** Batch ID: **48626** RunNo: **64665**

Prep Date: **11/6/2019** Analysis Date: **11/20/2019** SeqNo: **2215394** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	4.9	24.60	0	0	75	125			S
Arsenic	22	4.9	24.60	3.687	72.5	75	125			S
Barium	330	0.20	24.60	335.5	-10.3	75	125			S
Beryllium	23	0.30	24.60	0.9464	89.7	75	125			
Cadmium	21	0.20	24.60	0	85.5	75	125			
Chromium	35	0.59	24.60	11.20	95.8	75	125			
Cobalt	25	0.59	24.60	4.126	85.2	75	125			
Lead	34	0.49	24.60	17.04	69.2	75	125			S
Manganese	330	0.20	24.60	326.9	7.18	75	125			S
Nickel	30	0.98	24.60	8.294	88.8	75	125			
Selenium	17	4.9	24.60	0	69.8	75	125			S
Silver	3.1	0.49	4.919	0	63.2	75	125			S
Vanadium	43	4.9	24.60	18.21	99.1	75	125			
Zinc	94	4.9	24.60	85.34	34.1	75	125			S

Sample ID: **1910E91-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-1 (0-0.5')** Batch ID: **48626** RunNo: **64665**

Prep Date: **11/6/2019** Analysis Date: **11/20/2019** SeqNo: **2215395** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	4.9	24.58	0	0	75	125	0	20	S
Arsenic	24	4.9	24.58	3.687	83.1	75	125	11.3	20	
Barium	340	0.20	24.58	335.5	24.2	75	125	2.52	20	S
Beryllium	23	0.29	24.58	0.9464	88.5	75	125	1.42	20	
Cadmium	21	0.20	24.58	0	85.5	75	125	0.00418	20	
Chromium	34	0.59	24.58	11.20	93.8	75	125	1.45	20	
Cobalt	26	0.59	24.58	4.126	87.7	75	125	2.39	20	
Lead	33	0.49	24.58	17.04	65.4	75	125	2.86	20	S
Manganese	320	0.20	24.58	326.9	-31.3	75	125	2.92	20	S
Nickel	31	0.98	24.58	8.294	92.1	75	125	2.54	20	
Selenium	16	4.9	24.58	0	66.5	75	125	4.91	20	S
Silver	3.0	0.49	4.916	0	60.2	75	125	4.91	20	S
Vanadium	42	4.9	24.58	18.21	94.9	75	125	2.46	20	
Zinc	100	4.9	24.58	85.34	76.1	75	125	10.4	20	

Sample ID: **MB-48626** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **PBS** Batch ID: **48626** RunNo: **64788**

Prep Date: **11/6/2019** Analysis Date: **11/26/2019** SeqNo: **2220515** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48626**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48626**	RunNo: **64788**
Prep Date: **11/6/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220515** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								

Sample ID: **LCS-48626**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48626**	RunNo: **64788**
Prep Date: **11/6/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220517** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	23	2.5	25.00	0	92.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48511** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **48511** RunNo: **64273**
Prep Date: **10/31/2019** Analysis Date: **11/6/2019** SeqNo: **2199633** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Iron	ND	0.020								
Manganese	0.00043	0.0020								J
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID: **LCS-48511** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **48511** RunNo: **64273**
Prep Date: **10/31/2019** Analysis Date: **11/6/2019** SeqNo: **2199635** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	95.6	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Chromium	0.50	0.0060	0.5000	0	99.3	80	120			
Iron	0.51	0.020	0.5000	0	102	80	120			
Manganese	0.50	0.0020	0.5000	0	99.4	80	120			
Nickel	0.49	0.010	0.5000	0	98.5	80	120			
Silver	0.097	0.0050	0.1000	0	97.3	80	120			
Vanadium	0.50	0.050	0.5000	0	101	80	120			
Zinc	0.50	0.020	0.5000	0	99.8	80	120			

Sample ID: **MB-48511** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **48511** RunNo: **64389**
Prep Date: **10/31/2019** Analysis Date: **11/11/2019** SeqNo: **2203939** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: **LCS-48511** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **48511** RunNo: **64389**
Prep Date: **10/31/2019** Analysis Date: **11/11/2019** SeqNo: **2203941** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.50	0.0050	0.5000	0	99.1	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48511**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48511**	RunNo: **64501**
Prep Date: **10/31/2019**	Analysis Date: **11/13/2019**	SeqNo: **2208272** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								
Selenium	ND	0.050								

Sample ID: **LCS-48511**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48511**	RunNo: **64501**
Prep Date: **10/31/2019**	Analysis Date: **11/13/2019**	SeqNo: **2208274** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.52	0.0050	0.5000	0	103	80	120			
Selenium	0.54	0.050	0.5000	0	108	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910E91**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	70	130			
Surr: BFB	9.5		10.00		95.5	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197979** 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	9.3		10.00		93.0	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1910E91** RcptNo: **1**

Received By: **Anne Thorne** **10/30/2019 7:20:00 AM** Anne Thorne

Completed By: **Leah Baca** **10/30/2019 8:40:14 AM** Leah Baca

Reviewed By: DAD 10/31/19

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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

of preserved bottles checked for pH: 2:1
(<2 or >12 unless noted)
Adjusted? NO

Checked by: DAD 10/31/19

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	1.2	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0 +0.2 = 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (SKINNER LIST)	8270 (SKINNER LIST)	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/28/19	1255	Soil	SL-1 (0-0.5')	8 oz jar - 2	Neat	1910Gal -001			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1310		SL-1 (2-2.5')	8oz Jar-2	NEAT	-002			X							X	X	X	X			
				4oz Jar-1	NEAT															X		
				Vial-2	MeOH											X						
	1325		SL-1 (6-8')	8oz Jar-2	NEAT	-003			X							X	X	X	X			
				4oz Jar-1	NEAT															X		
				Vial-2	MeOH											X						

Date	Time	Relinquished by:	Received by:	Date	Time
10/29/19	0700		Eugene Ugi	10/29/19	1530
10/30/19	720			10/30/19	0720

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.0 +0.2 = 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOANER LIST)	8270 (SVOANER LIST)	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/28/19	1340	Soil	SL-1 (12-14')	8 oz jar - 1	Neat	1910E91-004			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/29/19	0700		Rogue Vigil	10/29/19	1530
10/30/19	720			10/30/19	0720

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.0 +0.2 = 1.2

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1910E91	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B [redacted]	8270 [redacted]	Metals - Total	Chromium VI	Anions	Cyanide			Air Bubbles (Y or N)
10/28/19	1500	Water	EB102819	40ml voa - 5	HCl	-005			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -1	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			

Date	Time	Relinquished by:	Received by:	Date	Time
10/29/19	0700		Eugene Vogi	10/29/19	1530
10/30/19	0720			10/30/19	0720

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Sanitary Sewer Lagoon - Soil and Equipment Blank Analytical Requirements

- SW-846 Method 8260 for [redacted] volatile organic compounds;
- SW-846 Method 8270 for [redacted] semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics.

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020
Chloride	EPA Method 300.0
Fluoride	EPA Method 300.0
Nitrate	EPA Method 300.0
Nitrite	EPA Method 300.0
Sulfate	EPA Method 300.0
[redacted]	[redacted]
[redacted]	[redacted]

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

November 07, 2019

Brian Moore

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX

RE: Sanitary Sewer Lagoon OrderNo.: 1910F65

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 11 sample(s) on 10/31/2019 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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 06, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1155008
Samples Received:	10/30/2019
Project Number:	
Description:	Sanitary Sewer Lagoon

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 5

Sr: Sample Results 6

- 1910F65-001A SL-2 (0-0.5') L1155008-01 6
- 1910F65-002A SL-2 (2-2.5') L1155008-02 7
- 1910F65-003A SL-2 (2.5-4') L1155008-03 8
- 1910F65-004A SL-2 (6-8') L1155008-04 9
- 1910F65-005A SL-2 (14-16') L1155008-05 10
- 1910F65-006A SL-3 (0-0.5') L1155008-06 11
- 1910F65-007A SL-3 (2-2.5') L1155008-07 12
- 1910F65-008A SL-3 (6-8') L1155008-08 13
- 1910F65-009A SL-3 (14-16') L1155008-09 14
- 1910F65-0010A DUP01 L1155008-10 15
- 1910F65-0011A EB102919B L1155008-11 16

Gl: Glossary of Terms 17

Al: Accreditations & Locations 18

Sc: Sample Chain of Custody 19



1910F65-001A SL-2 (0-0.5') L1155008-01 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 10:35	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-002A SL-2 (2-2.5') L1155008-02 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 10:50	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-003A SL-2 (2.5-4') L1155008-03 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 11:05	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-004A SL-2 (6-8') L1155008-04 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 11:17	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-005A SL-2 (14-16') L1155008-05 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 11:30	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-006A SL-3 (0-0.5') L1155008-06 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 13:40	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-007A SL-3 (2-2.5') L1155008-07 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 13:55	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-008A SL-3 (6-8') L1155008-08 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 14:05	10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-009A SL-3 (14-16') L1155008-09 Solid

Collected by | Collected date/time 10/29/19 14:15 | Received date/time 10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-0010A DUP01 L1155008-10 Solid

Collected by | Collected date/time 10/29/19 00:00 | Received date/time 10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373205	10	10/31/19 12:02	10/31/19 12:02	NY	Mt. Juliet, TN

1910F65-0011A EB102919B L1155008-11 GW

Collected by | Collected date/time 10/29/19 14:25 | Received date/time 10/30/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG1372263	1	10/30/19 14:30	10/30/19 14:30	NY	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

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.12	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.31	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.19	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.31	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.16	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.13	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.06	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.22	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.14	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.16	Q	10	10/31/2019 12:02	WG1373205

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	MPN/100ml				
E.Coli	<1	T8	1	10/30/2019 14:30	WG1372263
Coliform,Total	<1	T8	1	10/30/2019 14:30	WG1372263

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

SDG	Sample Delivery Group.
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.
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
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.

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

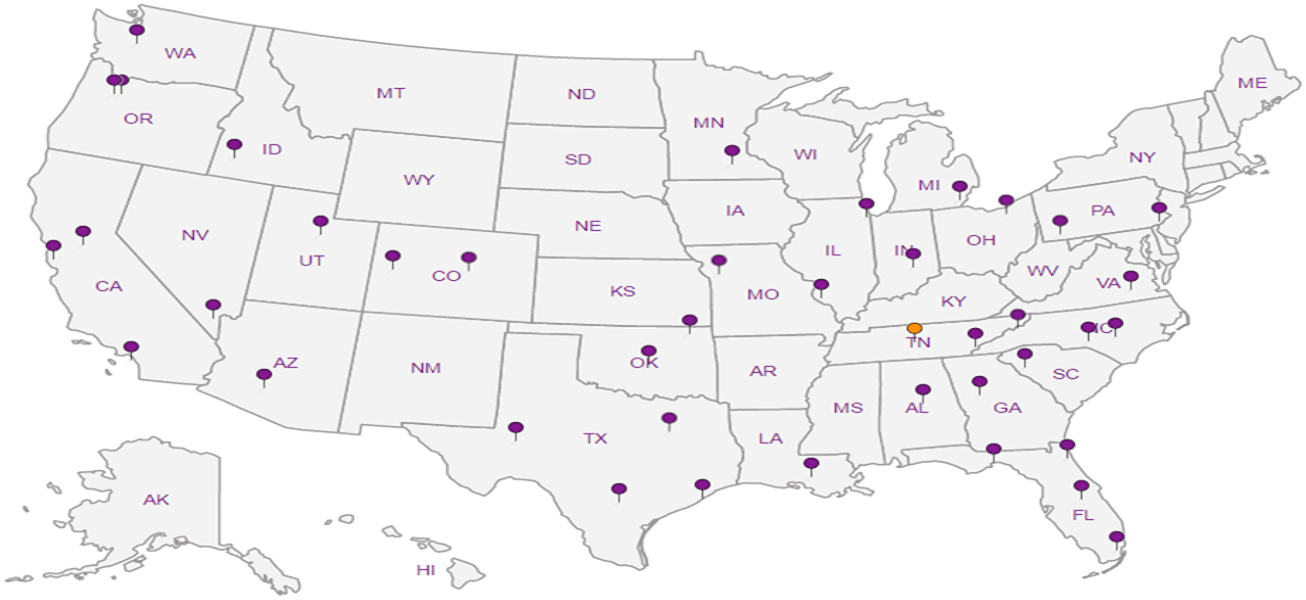
Third Party Federal Accreditations

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.



L1155008

1 OF 1

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**
Gallup Refinery
Mailing Address: **92 Giant Crossing Road**
Gallup, NM 87301
Phone #: **505-726-9745**
Email: Bmoore1@marathonpetroleum.com
QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
☐ Other
☒ EDD (Type) EXCEL

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: **Sanitary Sewer Lagoon**
Project #:
Project Manager: **Brian Moore**
Sampler: **Tracy Payne - 919-561-7055**
On Ice: ☒ Yes ☐ No
Sample Temperature:

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. 1910624
~~10/28/19~~	1255	Soil	SL-1 (0-0.5')	~~100 mL~~ ~~8 oz Jar~~ 1	Neat	001
	1310		SL-1 (2-2.5')	100ML-1	NEAT	002
	1325		SL-1 (6-8')	100ML-1	NEAT	003
	~~1340~~ ~~1325~~	↓	SL-1 (12-14')	100ML-1	NEAT	004
↓	1350	WATER	EB102819B	100ML-1	NEAT	005

BTEX+MTBE+TMB's (8021)	BTEX+MTBE+TPH (Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli	Air Bubbles (Y or N)
												X	X	
												X	X	
												X	X	
												X	X	
												X	X	

Date: 10/28/19 Time: 1415 Relinquished by:
Date: Time: Relinquished by:

Received by: Date: 10/28/19 Time: 1430
Received by: Date: Time:

Remarks: See attached sheet for Analytical Methods and Target Analytes.
*Please send invoice & report to Hall Environmental / AO 10/28/19

L1155008

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR: ESC PACE	COMPANY: ESC PACE	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1910E24-001A	SL-1 (0-0.5')	120 ML NA2 S2O3	Soil	10/28/2019 12:55:00 PM	1	Total coliform
2	1910E24-002A	SL-1 (2-2.5')	120 ML NA2 S2O3	Soil	10/28/2019 1:10:00 PM	1	Total coliform
3	1910E24-003A	SL-1 (6-8')	120 ML NA2 S2O3	Soil	10/28/2019 1:25:00 PM	1	Total coliform
4	1910E24-004A	SL-1 (12-14')	120 ML NA2 S2O3	Soil	10/28/2019 1:40:00 PM	1	Total coliform
5	1910E24-005A	EB102819B	120 ML NA2 S2O3	Aqueous	10/28/2019 1:50:00 PM	1	TOTAL COLIFORM

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By:	Date: 10/29/2019	Time: 9:13 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

REPORT TRANSMITTAL DESIRED:
[ ] HARDCOPY (extra cost) [ ] FAX [ ] EMAIL [ ] ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

E035

1155008

1 OF 1

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)	
10/29/19	1035	Soil	SL-2(0-0.5')	100ML ~~8 oz Jar~~ PLASTIC 1	Neat														X	X			-01
	1050		SL-2(2-2.5')																X	X			02
	1105		SL-2(2.5-4')																X	X			03
	1117		SL-2(6-8')																X	X			04
	1130		SL-2(14-16')																X	X			05
	1340		SL-3(0-0.5')																X	X			06
	1355		SL-3(2-2.5')																X	X			07
	1405		SL-3(6-8')																X	X			08
	1415		SL-3(14-16')																X	X			09
	—		DUP01																X	X			10
	1425	WATER	EB102919B																X	X			11

Date	Time	Relinquished by:	Received by:	Date	Time
10/29/19	1440			10/30/19	8:30
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes. SEND REPORT TO HEAL

4510 1669 1907

3.5-3.7 APA

RAD SCREEN: <0.5 mR/hr

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR: ESC PACE	COMPANY: ESC PACE	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1910F65-001A	SL-2 (0-0.5')		Soil	10/29/2019 10:35:00 AM	1	FCB 1681 LEVEL 4
2	1910F65-002A	SL-2 (2-25')		Soil	10/29/2019 10:50:00 AM	1	FCB 1681 LEVEL 4
3	1910F65-003A	SL-2 (2.5-4')		Soil	10/29/2019 11:05:00 AM	1	FCB 1681 LEVEL 4
4	1910F65-004A	SL-2 (6-8')		Soil	10/29/2019 11:17:00 AM	1	FCB 1681 LEVEL 4
5	1910F65-005A	SL-2 (14-16')		Soil	10/29/2019 11:30:00 AM	1	FCB 1681 LEVEL 4
6	1910F65-006A	SL-3 (0-0.5')		Soil	10/29/2019 1:40:00 PM	1	FCB 1681 LEVEL 4
7	1910F65-007A	SL-3 (2-2.5')		Soil	10/29/2019 1:55:00 PM	1	FCB 1681 LEVEL 4
8	1910F65-008A	SL-3 (6-8')		Soil	10/29/2019 2:05:00 PM	1	FCB 1681 LEVEL 4
9	1910F65-009A	SL-3 (14-16')		Soil	10/29/2019 2:15:00 PM	1	FCB 1681 LEVEL 4
10	1910F65-010A	DUP 01		Soil	10/29/2019	1	FCB 1681 LEVEL 4
11	1910F65-011A	EB102919B	120 ML NA2 S2O3	Aqueous	10/29/2019 2:25:00 PM	1	TOTAL COLIFORM/ECOLI LEVEL 4

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By:	Date: 10/31/2019	Time: 9:57 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool ? _____

Comments: _____

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANM	105008	
Cooler Received/Opened On: 10/30/19 Temperature:	3.7	
Received By: Carol Kemp		
Signature: Carol Kemp		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

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: MARATHON GALLUP Work Order Number: 1910F65 RcptNo: 1

Received By: Anne Thorne 10/31/2019 7:00:00 AM

Completed By: Anne Thorne 10/31/2019 9:39:23 AM

Reviewed By: AT 10/31/19

Chain of Custody

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

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 ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: AT 10/31/19

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:

DUE TO SHORT HOLD TIME, CLIENT SHIPPED SAMPLES DIRECTLY TO PACE TN/CUSTODY SEALS INTACT ON SAMPLES/at 10/31/19

17. **Cooler Information**

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9745

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 919-561-7055

On Ice: X Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE

Tel. 505-345-

Albuquerque, NM 87109

Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
10/7/21	1035	Soil	SL-2 (0-0.5')	1402 Glass	None	-01
	1040		SL-2 (2-2.5')			-02
	1045		SL-2 (2.5-4')			-03
	1100		SL-2 (4-6')			-04
	1130		SL-2 (14-16')			-05
	1240		SL-3 (0-0.5')			-06
	1255		SL-3 (2-2.5')			-07
	1305		SL-3 (4-6')			-08
	1315		SL-3 (14-16')			-09
	—	↓	DUP-1			-10
↓	1425	↓	SL-1 (2-2.5')	↓	↓	-11

Date:	Time:	Relinquished by:	Received by:	Via:	Date Time
10/7/21	1540				

Date:	Time:	Relinquished by:	Received by:	Via:	Date Time
					10/8/21 0740

Remarks: See attached sheet for Analytical Methods and Target Analytes.

SEND REPORT TO HEAL

BTEX+MTBE+TMB's (8021)

BTEX+MTBE+TPH (Gas only)

TPH (Method 8015B) (GRO/DRO/MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8270 or 8310)

RCRA 8 Metals

Anions (F, Cl, NO3, NO2, PO4, SO4)

8081 Pesticides / 8082 PCB's

8260 (VOA)

8270 (Semi-VOA)

Total Coliform (Present/Absent)

EDD (Type)

TCLP

X X

X X

X X

X X

X X

X X

X X

X X

X X

X X

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

November 11, 2019

Brian Moore

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX

RE: Sanitary Sewer Lagoon OrderNo.: 1910F71

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 10 sample(s) on 10/31/2019 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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 07, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group:	L1155640
Samples Received:	10/31/2019
Project Number:	
Description:	Sanitary Sewer Lagoon

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 5

Sr: Sample Results 6

- 1910F71-001A SL-4 (0-0.5') L1155640-01 6
- 1910F71-002A SL-4 (2-2.5') L1155640-02 7
- 1910F71-003A SL-4 (6-8') L1155640-03 8
- 1910F71-0041A SL-4 (14-16') L1155640-04 9
- 1910F71-005A SL-5 (0-0.5') L1155640-05 10
- 1910F71-006A SL-5 (6-8') L1155640-06 11
- 1910F71-007A SL-5 (2-2.5') L1155640-07 12
- 1910F71-008A SL-5 (12-14') L1155640-08 13
- 1910F71-009A DUP02 L1155640-09 14
- 1910F71-010A EB103019 L1155640-10 15

Gl: Glossary of Terms 16

Al: Accreditations & Locations 17

Sc: Sample Chain of Custody 18

1910F71-001A SL-4 (0-0.5') L1155640-01 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:20	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	10	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-002A SL-4 (2-2.5') L1155640-02 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:30	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-003A SL-4 (6-8') L1155640-03 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:40	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-0041A SL-4 (14-16') L1155640-04 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:50	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-005A SL-5 (0-0.5') L1155640-05 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 12:40	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-006A SL-5 (6-8') L1155640-06 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 14:20	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-007A SL-5 (2-2.5') L1155640-07 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 14:00	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-008A SL-5 (12-14') L1155640-08 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 14:30	10/31/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-009A DUP02 L1155640-09 Solid

			Collected by	Collected date/time	Received date/time	
				10/30/19 00:00	10/31/19 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method EPA 1681	WG1373206	1	10/31/19 14:55	10/31/19 14:55	NY	Mt. Juliet, TN

1910F71-010A EB103019 L1155640-10 GW

			Collected by	Collected date/time	Received date/time	
				10/30/19 14:40	10/31/19 09:00	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Microbiology by Method 9223B-2004	WG1375138	1	10/31/19 14:21	10/31/19 14:21	BGE	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

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.15	Q	10	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	5.14	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.27	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.11	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.30	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.22	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.34	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.13	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method EPA 1681

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/g			date / time	
Fecal Coliform	<2.32	Q	1	10/31/2019 14:55	WG1373206

Microbiology by Method 9223B-2004

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	MPN/100ml			date / time	
E.Coli	<1	T8	1	10/31/2019 14:21	WG1375138
Coliform,Total	<1	T8	1	10/31/2019 14:21	WG1375138

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

SDG	Sample Delivery Group.
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.
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
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.

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

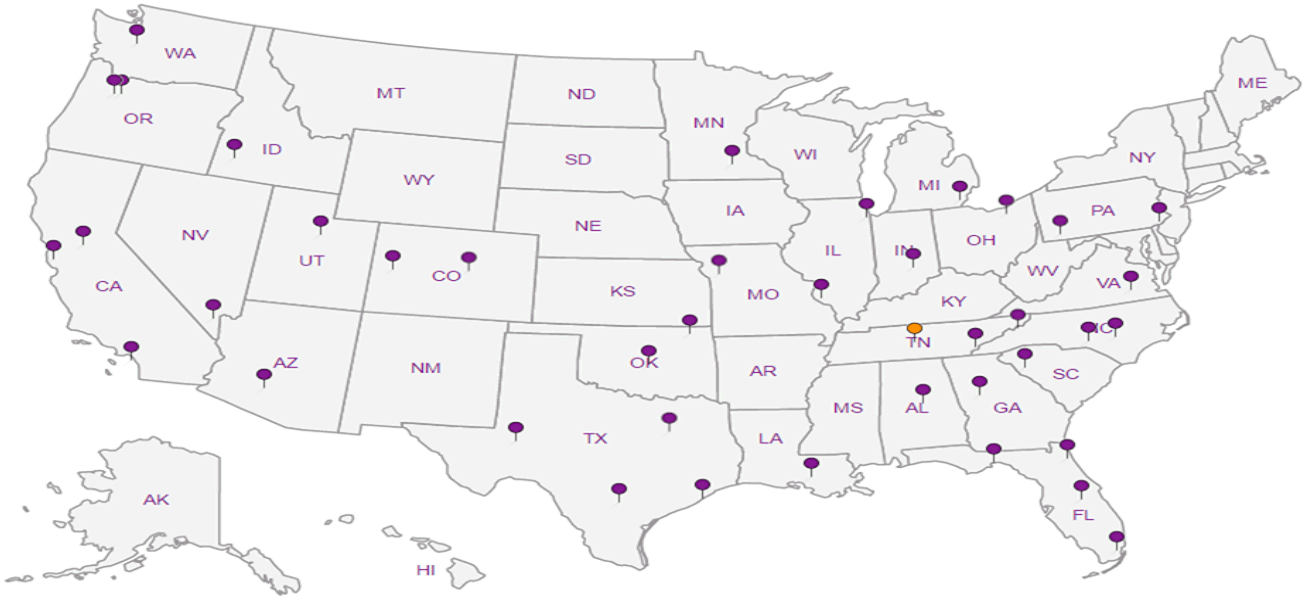
Third Party Federal Accreditations

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.



E108

1 OF 1

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

L11 55640

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
10/30/19	1120	Soil	SL-4 (0-0.5')	100 mL BOTTLE ~~8 oz Jar~~ - 1	Neat														X	X		-01
	1130		SL-4 (2-2.5')																X	X		02
	1140		SL-4 (6-8')																X	X		03
	1150		SL-4 (14-16')																X	X		04
	1240		SL-5 (0-0.5')																X	X		05
	1420		SL-5 (6-8')																X	X		06
	1400		SL-5 (2-2.5')																X	X		07
	1430		SL-5 (12-14')																X	X		08
	—	↓	DUP02																X	X		09
↓	1440	WATER	EB103019																X	X		10

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/30/19	1450		Carol Kemp	10/31/19	9:00
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

24-2222AE

RAD SCREEN: <0.5 mR/hr

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANM	L1155640	
Cooler Received/Opened On: 10/13/19 Temperature:	2.2	
Received By: Carol Kemp		
Signature: Carol Kemp		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR: ESC PACE	COMPANY: ESC PACE	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1910F71-001A	SL-4 (0-0.5')	120 ML NA2 S2O3	Soil	10/30/2019 11:20:00 AM	1	FCB 1681 LEVEL 4
2	1910F71-002A	SL-4 (2-2.5')	120 ML NA2 S2O3	Soil	10/30/2019 11:30:00 AM	1	FCB 1681 LEVEL 4
3	1910F71-003A	SL-4 (6-8')	120 ML NA2 S2O3	Soil	10/30/2019 11:40:00 AM	1	FCB 1681 LEVEL 4
4	1910F71-004A	SL-4 (14-16')	120 ML NA2 S2O3	Soil	10/30/2019 11:50:00 AM	1	FCB 1681 LEVEL 4
5	1910F71-005A	SL-5 (0-0.5')	120 ML NA2 S2O3	Soil	10/30/2019 12:40:00 PM	1	FCB 1681 LEVEL 4
6	1910F71-006A	SL-5 (6-8')	120 ML NA2 S2O3	Soil	10/30/2019 2:20:00 PM	1	FCB 1681 LEVEL 4
7	1910F71-007A	SL-5 (2-2.5')	120 ML NA2 S2O3	Soil	10/30/2019 2:00:00 PM	1	FCB 1681 LEVEL 4
8	1910F71-008A	SL-5 (12-14')	120 ML NA2 S2O3	Soil	10/30/2019 2:30:00 PM	1	FCB 1681 LEVEL 4
9	1910F71-009A	DUP 02	120 ML NA2 S2O3	Soil	10/30/2019	1	FCB 1681 LEVEL 4
10	1910F71-010A	EB103019	120 ML NA2 S2O3	Aqueous	10/30/2019 2:40:00 PM	1	TOTAL COLIFORM/ECOLI LEVEL 4

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By:	Date: 10/31/2019	Time: 10:30 AM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY

Temp of samples _____ °C Attempt to Cool? _____

Comments: _____

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: MARATHON GALLUP Work Order Number: 1910F71 RcptNo: 1

Received By: **Anne Thorne** 10/31/2019 7:00:00 AM Anne Thorne

Completed By: **Anne Thorne** 10/31/2019 10:06:52 AM Anne Thorne

Reviewed By: AT 10/31/19

Chain of Custody

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

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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: AT 10/31/19

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:

DUE TO SHORT HOLD TIME, CLIENT SHIPPED SAMPLES DIRECTLY TO PACE TN, CUSTODY SEAYLS INTACT ON SAMPLE CONTAINERS/at 10/31/19

17. **Cooler Information**

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9748

Email: tpayne1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other

X EDD (Type): EXCEL

Turn-Around Time:

X Standard ☐ Rush

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 918-661-7365

On Ice: X Yes ☐ No

Sample Temperature:

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
10/30/19	1120	Soil	SL-4 (0-0.5')	4oz Jar	Cool	-001
	1130		SL-4 (2-2.5')			-002
	1150		SL-4 (6-8')			-003
	1152		SL-4 (14-16')			-004
	1240		SL-5 (0-0.5')			-005
	1420		SL-5 (6-8')			-006
	1430		SL-5 (2-2.5')			-007
	1436		SL-5 (11-14')			-008
	—	↓	TRIP02			-009
↓	1440	Water	SL-6 (3-3.5')	↓	↓	-010

Relinquished by: [signature] Date: 10/30/19 Time: 1450

Received by: [signature] Date: 10/30/19 Time: 2242

Page 1 of 1

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE (8021)	TPH (Gas only)	TPH (8015D) GRO / DRO / MRO	TPH (8015D) GRO	TPH (8015D) DRO	TPH (8015D) MRO	PAH's (8270)	RCRA 8 Metals	Total Coliform (Present/Absent)	Air Bubbles (Y or N)
								X	X	
								X	X	
								X	X	
								X	X	
								X	X	
								X	X	
								X	X	
								X	X	
								X	X	
								X	X	

Remarks: See attached sheet for Analytical Methods and Target Analytes.

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

December 05, 2019

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

RE: Sanitary Sewer Lagoon OrderNo.: 1910F75

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 12 sample(s) on 10/31/2019 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: Marathon
Client Sample ID: SL-2 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:35:00 AM
Lab ID: 1910F75-001 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	2600	9.9	50		mg/Kg	5	11/4/2019 3:23:16 PM	48543
Motor Oil Range Organics (MRO)	540	250	250		mg/Kg	5	11/4/2019 3:23:16 PM	48543
Surr: DNOP	109	0	70-130		%Rec	5	11/4/2019 3:23:16 PM	48543
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.3	4.3		mg/Kg	1	11/4/2019 1:04:58 PM	G64209
Surr: BFB	92.2	0	77.4-118		%Rec	1	11/4/2019 1:04:58 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	1.6	1.5	1.5		mg/Kg	5	11/6/2019 1:14:43 PM	48614
Chloride	340	30	30		mg/Kg	20	11/6/2019 1:27:07 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 1:14:43 PM	48614
Nitrogen, Nitrate (As N)	22	1.5	1.5		mg/Kg	5	11/6/2019 1:14:43 PM	48614
Sulfate	3000	30	30		mg/Kg	20	11/6/2019 1:27:07 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.058	0.0018	0.033		mg/Kg	1	11/7/2019 5:23:36 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Arsenic	3.1	2.9	5.0	J	mg/Kg	2	11/20/2019 6:35:57 PM	48558
Barium	500	0.047	0.20		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Beryllium	1.0	0.018	0.30		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Chromium	9.8	0.16	0.60		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Cobalt	3.9	0.21	0.60		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Iron	13000	73	250		mg/Kg	100	11/20/2019 6:48:22 PM	48558
Lead	8.8	0.49	0.50		mg/Kg	2	11/20/2019 6:35:57 PM	48558
Manganese	140	0.042	0.20		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Nickel	9.0	0.30	1.0		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Selenium	ND	2.5	5.0		mg/Kg	2	11/20/2019 6:35:57 PM	48558
Silver	ND	0.065	0.50		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Vanadium	18	0.13	5.0		mg/Kg	2	11/20/2019 6:06:30 PM	48558
Zinc	75	0.80	5.0		mg/Kg	2	11/20/2019 6:06:30 PM	48558
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Acenaphthylene	ND	0.99	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Aniline	ND	1.2	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Anthracene	ND	0.97	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Azobenzene	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Benz(a)anthracene	ND	0.87	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:35:00 AM
Lab ID: 1910F75-001
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.81	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Benzo(b)fluoranthene	ND	0.80	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Benzo(g,h,i)perylene	ND	0.78	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Benzo(k)fluoranthene	ND	0.82	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Benzoic acid	ND	0.94	4.5	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Benzyl alcohol	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Bis(2-chloroethoxy)methane	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Bis(2-chloroethyl)ether	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Bis(2-chloroisopropyl)ether	ND	1.0	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Bis(2-ethylhexyl)phthalate	ND	1.3	4.5	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
4-Bromophenyl phenyl ether	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Butyl benzyl phthalate	ND	0.93	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Carbazole	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
4-Chloro-3-methylphenol	ND	1.4	4.5	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
4-Chloroaniline	ND	1.3	4.5	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2-Chloronaphthalene	ND	1.1	2.3	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2-Chlorophenol	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
4-Chlorophenyl phenyl ether	ND	0.99	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Chrysene	ND	0.80	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Di-n-butyl phthalate	ND	1.4	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Di-n-octyl phthalate	ND	0.92	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Dibenz(a,h)anthracene	ND	0.82	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Dibenzofuran	ND	1.2	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
1,2-Dichlorobenzene	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
1,3-Dichlorobenzene	ND	0.95	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
1,4-Dichlorobenzene	ND	0.97	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
3,3´-Dichlorobenzidine	ND	0.81	2.3	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Diethyl phthalate	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Dimethyl phthalate	ND	1.2	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2,4-Dichlorophenol	ND	1.1	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2,4-Dimethylphenol	ND	1.0	2.7	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.84	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2,4-Dinitrophenol	ND	0.66	4.5	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2,4-Dinitrotoluene	ND	1.1	4.5	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2,6-Dinitrotoluene	ND	1.2	4.5	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Fluoranthene	ND	1.0	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Fluorene	ND	1.0	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Hexachlorobenzene	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Hexachlorobutadiene	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:35:00 AM
Lab ID: 1910F75-001
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	1.0	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Hexachloroethane	ND	1.0	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.90	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Isophorone	ND	1.3	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
1-Methylnaphthalene	ND	1.4	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2-Methylnaphthalene	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2-Methylphenol	ND	1.1	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
3+4-Methylphenol	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
N-Nitrosodi-n-propylamine	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
N-Nitrosodiphenylamine	ND	0.95	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Naphthalene	ND	1.4	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2-Nitroaniline	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
3-Nitroaniline	ND	1.3	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
4-Nitroaniline	ND	1.2	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Nitrobenzene	ND	1.3	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2-Nitrophenol	ND	1.2	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
4-Nitrophenol	ND	1.2	2.3	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Pentachlorophenol	ND	0.93	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Phenanthrene	ND	0.98	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Phenol	ND	1.1	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Pyrene	ND	0.85	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Pyridine	ND	1.1	3.6	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
1,2,4-Trichlorobenzene	ND	1.4	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2,4,5-Trichlorophenol	ND	1.2	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
2,4,6-Trichlorophenol	ND	0.95	1.8	D	mg/Kg	1	11/8/2019 7:09:23 PM	48536
Surr: 2-Fluorophenol	0		26.7-85.9	SD	%Rec	1	11/8/2019 7:09:23 PM	48536
Surr: Phenol-d5	0		18.5-101	SD	%Rec	1	11/8/2019 7:09:23 PM	48536
Surr: 2,4,6-Tribromophenol	0		35.8-85.6	SD	%Rec	1	11/8/2019 7:09:23 PM	48536
Surr: Nitrobenzene-d5	0		40.8-95.2	SD	%Rec	1	11/8/2019 7:09:23 PM	48536
Surr: 2-Fluorobiphenyl	0		34.7-85.2	SD	%Rec	1	11/8/2019 7:09:23 PM	48536
Surr: 4-Terphenyl-d14	0		37.4-91.3	SD	%Rec	1	11/8/2019 7:09:23 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0035	0.022		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Toluene	ND	0.0041	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Ethylbenzene	ND	0.0025	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.010	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2,4-Trimethylbenzene	ND	0.0039	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,3,5-Trimethylbenzene	ND	0.0042	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2-Dichloroethane (EDC)	ND	0.0044	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:35:00 AM
Lab ID: 1910F75-001
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0039	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Naphthalene	ND	0.0086	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1-Methylnaphthalene	ND	0.025	0.17		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
2-Methylnaphthalene	ND	0.019	0.17		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Acetone	ND	0.036	0.65		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Bromobenzene	ND	0.0041	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Bromodichloromethane	ND	0.0039	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Bromoform	ND	0.0039	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Bromomethane	ND	0.010	0.13		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
2-Butanone	ND	0.050	0.43		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Carbon disulfide	ND	0.014	0.43		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Carbon tetrachloride	ND	0.0041	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Chlorobenzene	ND	0.0055	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Chloroethane	ND	0.0063	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Chloroform	ND	0.0035	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Chloromethane	ND	0.0041	0.13		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
2-Chlorotoluene	ND	0.0037	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
4-Chlorotoluene	ND	0.0035	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
cis-1,2-DCE	ND	0.0059	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
cis-1,3-Dichloropropene	ND	0.0036	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0044	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Dibromochloromethane	ND	0.0031	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Dibromomethane	ND	0.0046	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2-Dichlorobenzene	ND	0.0035	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,3-Dichlorobenzene	ND	0.0037	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,4-Dichlorobenzene	ND	0.0036	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Dichlorodifluoromethane	ND	0.010	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,1-Dichloroethane	ND	0.0028	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,1-Dichloroethene	ND	0.017	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2-Dichloropropane	ND	0.0031	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,3-Dichloropropane	ND	0.0047	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
2,2-Dichloropropane	ND	0.014	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,1-Dichloropropene	ND	0.0039	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Hexachlorobutadiene	0.012	0.0044	0.086	J	mg/Kg	1	11/1/2019 8:30:53 PM	A64178
2-Hexanone	ND	0.0072	0.43		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Isopropylbenzene	ND	0.0031	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
4-Isopropyltoluene	ND	0.0036	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
4-Methyl-2-pentanone	ND	0.0081	0.43		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Methylene chloride	ND	0.0076	0.13		mg/Kg	1	11/1/2019 8:30:53 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:35:00 AM
Lab ID: 1910F75-001 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0040	0.13		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
n-Propylbenzene	ND	0.0034	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
sec-Butylbenzene	ND	0.0049	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Styrene	ND	0.0034	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
tert-Butylbenzene	ND	0.0041	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0029	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0044	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Tetrachloroethene (PCE)	ND	0.0034	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
trans-1,2-DCE	ND	0.0039	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
trans-1,3-Dichloropropene	ND	0.0046	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2,3-Trichlorobenzene	ND	0.0038	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2,4-Trichlorobenzene	ND	0.0044	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,1,1-Trichloroethane	ND	0.0039	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,1,2-Trichloroethane	ND	0.0030	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Trichloroethene (TCE)	ND	0.0050	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Trichlorofluoromethane	ND	0.015	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
1,2,3-Trichloropropane	ND	0.0070	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Vinyl chloride	ND	0.0028	0.043		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Xylenes, Total	ND	0.011	0.086		mg/Kg	1	11/1/2019 8:30:53 PM	A64178
Surr: Dibromofluoromethane	113		70-130		%Rec	1	11/1/2019 8:30:53 PM	A64178
Surr: 1,2-Dichloroethane-d4	99.0		70-130		%Rec	1	11/1/2019 8:30:53 PM	A64178
Surr: Toluene-d8	105		70-130		%Rec	1	11/1/2019 8:30:53 PM	A64178
Surr: 4-Bromofluorobenzene	88.3		70-130		%Rec	1	11/1/2019 8:30:53 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:50:00 AM
Lab ID: 1910F75-002
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	210	1.8	9.1		mg/Kg	1	11/6/2019 3:18:14 PM	48544
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	11/6/2019 3:18:14 PM	48544
Surr: DNOP	112	0	70-130		%Rec	1	11/6/2019 3:18:14 PM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.85	2.8		mg/Kg	1	11/4/2019 1:28:06 PM	G64209
Surr: BFB	93.1	0	77.4-118		%Rec	1	11/4/2019 1:28:06 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	4.0	1.5	1.5		mg/Kg	5	11/6/2019 1:39:32 PM	48614
Chloride	44	7.5	7.5		mg/Kg	5	11/6/2019 1:39:32 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 1:39:32 PM	48614
Nitrogen, Nitrate (As N)	21	1.5	1.5		mg/Kg	5	11/6/2019 1:39:32 PM	48614
Sulfate	380	7.5	7.5		mg/Kg	5	11/6/2019 1:39:32 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0086	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:25:33 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.75	5.1		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Arsenic	ND	2.9	5.1		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Barium	140	0.047	0.20		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Beryllium	0.97	0.019	0.31		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Chromium	7.5	0.16	0.61		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Cobalt	4.5	0.22	0.61		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Iron	13000	74	250		mg/Kg	100	11/20/2019 6:53:44 PM	48558
Lead	5.5	0.49	0.51		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Manganese	280	0.042	0.20		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Nickel	8.6	0.30	1.0		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Selenium	ND	2.6	5.1		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Silver	ND	0.065	0.51		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Vanadium	15	0.14	5.1		mg/Kg	2	11/20/2019 6:52:07 PM	48558
Zinc	14	0.81	5.1		mg/Kg	2	11/20/2019 6:52:07 PM	48558
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Acenaphthylene	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Aniline	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Anthracene	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Azobenzene	ND	0.14	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Benz(a)anthracene	ND	0.099	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:50:00 AM
Lab ID: 1910F75-002
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.092	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Benzo(b)fluoranthene	ND	0.091	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Benzo(g,h,i)perylene	ND	0.088	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Benzo(k)fluoranthene	ND	0.094	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Benzoic acid	ND	0.11	0.52		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Benzyl alcohol	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Bis(2-chloroethoxy)methane	ND	0.15	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Bis(2-chloroethyl)ether	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Bis(2-ethylhexyl)phthalate	0.15	0.15	0.52	J	mg/Kg	1	11/8/2019 7:38:00 PM	48536
4-Bromophenyl phenyl ether	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Butyl benzyl phthalate	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Carbazole	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
4-Chloro-3-methylphenol	ND	0.16	0.52		mg/Kg	1	11/8/2019 7:38:00 PM	48536
4-Chloroaniline	ND	0.15	0.52		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2-Chloronaphthalene	ND	0.13	0.26		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2-Chlorophenol	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
4-Chlorophenyl phenyl ether	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Chrysene	ND	0.091	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Di-n-butyl phthalate	0.16	0.15	0.41	J	mg/Kg	1	11/8/2019 7:38:00 PM	48536
Di-n-octyl phthalate	ND	0.11	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Dibenz(a,h)anthracene	ND	0.094	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Dibenzofuran	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
1,2-Dichlorobenzene	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
1,3-Dichlorobenzene	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
1,4-Dichlorobenzene	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
3,3´-Dichlorobenzidine	ND	0.092	0.26		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Diethyl phthalate	ND	0.15	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Dimethyl phthalate	ND	0.14	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2,4-Dichlorophenol	ND	0.12	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2,4-Dimethylphenol	ND	0.11	0.31		mg/Kg	1	11/8/2019 7:38:00 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.095	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2,4-Dinitrophenol	ND	0.075	0.52		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2,4-Dinitrotoluene	ND	0.12	0.52		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2,6-Dinitrotoluene	ND	0.14	0.52		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Fluoranthene	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Fluorene	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Hexachlorobenzene	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Hexachlorobutadiene	ND	0.14	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:50:00 AM
Lab ID: 1910F75-002
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.12	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Hexachloroethane	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.10	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Isophorone	ND	0.15	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
1-Methylnaphthalene	ND	0.15	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2-Methylnaphthalene	ND	0.15	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2-Methylphenol	ND	0.12	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
3+4-Methylphenol	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
N-Nitrosodi-n-propylamine	ND	0.15	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
N-Nitrosodiphenylamine	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Naphthalene	ND	0.16	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2-Nitroaniline	ND	0.15	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
3-Nitroaniline	ND	0.14	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
4-Nitroaniline	ND	0.13	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Nitrobenzene	ND	0.14	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2-Nitrophenol	ND	0.14	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
4-Nitrophenol	ND	0.14	0.26		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Pentachlorophenol	ND	0.11	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Phenanthrene	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Phenol	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Pyrene	ND	0.097	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Pyridine	ND	0.12	0.41		mg/Kg	1	11/8/2019 7:38:00 PM	48536
1,2,4-Trichlorobenzene	ND	0.16	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2,4,5-Trichlorophenol	ND	0.13	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
2,4,6-Trichlorophenol	ND	0.11	0.21		mg/Kg	1	11/8/2019 7:38:00 PM	48536
Surr: 2-Fluorophenol	63.0		26.7-85.9		%Rec	1	11/8/2019 7:38:00 PM	48536
Surr: Phenol-d5	68.2		18.5-101		%Rec	1	11/8/2019 7:38:00 PM	48536
Surr: 2,4,6-Tribromophenol	77.7		35.8-85.6		%Rec	1	11/8/2019 7:38:00 PM	48536
Surr: Nitrobenzene-d5	70.6		40.8-95.2		%Rec	1	11/8/2019 7:38:00 PM	48536
Surr: 2-Fluorobiphenyl	77.3		34.7-85.2		%Rec	1	11/8/2019 7:38:00 PM	48536
Surr: 4-Terphenyl-d14	70.9		37.4-91.3		%Rec	1	11/8/2019 7:38:00 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0023	0.014		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Toluene	ND	0.0027	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Ethylbenzene	ND	0.0016	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0067	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2,4-Trimethylbenzene	ND	0.0026	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,3,5-Trimethylbenzene	ND	0.0027	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2-Dichloroethane (EDC)	ND	0.0029	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:50:00 AM
Lab ID: 1910F75-002
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0026	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Naphthalene	ND	0.0056	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1-Methylnaphthalene	ND	0.016	0.11		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Acetone	ND	0.023	0.42		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Bromobenzene	ND	0.0027	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Bromodichloromethane	ND	0.0026	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Bromoform	ND	0.0025	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Bromomethane	ND	0.0068	0.084		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
2-Butanone	0.036	0.032	0.28	J	mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Carbon disulfide	ND	0.0093	0.28		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Carbon tetrachloride	ND	0.0027	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Chlorobenzene	ND	0.0036	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Chloroethane	ND	0.0041	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Chloroform	ND	0.0023	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Chloromethane	ND	0.0027	0.084		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
2-Chlorotoluene	ND	0.0024	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
4-Chlorotoluene	ND	0.0023	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
cis-1,2-DCE	ND	0.0038	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
cis-1,3-Dichloropropene	ND	0.0024	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0029	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Dibromochloromethane	ND	0.0020	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Dibromomethane	ND	0.0030	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,3-Dichlorobenzene	ND	0.0024	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,4-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Dichlorodifluoromethane	ND	0.0065	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,1-Dichloroethane	ND	0.0018	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,1-Dichloroethene	ND	0.011	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2-Dichloropropane	ND	0.0020	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,3-Dichloropropane	ND	0.0030	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
2,2-Dichloropropane	ND	0.0091	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,1-Dichloropropene	ND	0.0026	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Hexachlorobutadiene	ND	0.0029	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
2-Hexanone	ND	0.0047	0.28		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Isopropylbenzene	ND	0.0020	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
4-Isopropyltoluene	ND	0.0023	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
4-Methyl-2-pentanone	ND	0.0053	0.28		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Methylene chloride	ND	0.0050	0.084		mg/Kg	1	11/1/2019 9:00:06 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 10:50:00 AM
Lab ID: 1910F75-002
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0026	0.084		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
n-Propylbenzene	ND	0.0022	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
sec-Butylbenzene	ND	0.0032	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Styrene	ND	0.0022	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
tert-Butylbenzene	ND	0.0026	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0019	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0028	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Tetrachloroethene (PCE)	ND	0.0022	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
trans-1,2-DCE	ND	0.0026	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
trans-1,3-Dichloropropene	ND	0.0030	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2,3-Trichlorobenzene	ND	0.0025	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2,4-Trichlorobenzene	ND	0.0028	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,1,1-Trichloroethane	ND	0.0025	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,1,2-Trichloroethane	ND	0.0020	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Trichloroethene (TCE)	ND	0.0033	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Trichlorofluoromethane	ND	0.0095	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
1,2,3-Trichloropropane	ND	0.0045	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Vinyl chloride	ND	0.0018	0.028		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Xylenes, Total	ND	0.0071	0.056		mg/Kg	1	11/1/2019 9:00:06 PM	A64178
Surr: Dibromofluoromethane	113		70-130		%Rec	1	11/1/2019 9:00:06 PM	A64178
Surr: 1,2-Dichloroethane-d4	98.5		70-130		%Rec	1	11/1/2019 9:00:06 PM	A64178
Surr: Toluene-d8	108		70-130		%Rec	1	11/1/2019 9:00:06 PM	A64178
Surr: 4-Bromofluorobenzene	88.3		70-130		%Rec	1	11/1/2019 9:00:06 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:05:00 AM
Lab ID: 1910F75-003
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	54	1.8	9.0		mg/Kg	1	11/6/2019 3:42:22 PM	48544
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	11/6/2019 3:42:22 PM	48544
Surr: DNOP	110	0	70-130		%Rec	1	11/6/2019 3:42:22 PM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.90	3.0		mg/Kg	1	11/4/2019 1:51:12 PM	G64209
Surr: BFB	93.4	0	77.4-118		%Rec	1	11/4/2019 1:51:12 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	3.7	1.5	1.5		mg/Kg	5	11/6/2019 2:04:22 PM	48614
Chloride	24	7.5	7.5		mg/Kg	5	11/6/2019 2:04:22 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 2:04:22 PM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 2:04:22 PM	48614
Sulfate	68	7.5	7.5		mg/Kg	5	11/6/2019 2:04:22 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0059	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:27:31 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.71	4.8		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Arsenic	ND	2.7	4.8		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Barium	280	0.045	0.19		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Beryllium	0.74	0.018	0.29		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Cadmium	ND	0.047	0.19		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Chromium	5.8	0.15	0.58		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Cobalt	3.3	0.20	0.58		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Iron	11000	70	240		mg/Kg	100	11/20/2019 6:56:51 PM	48558
Lead	3.8	0.47	0.48		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Manganese	230	0.040	0.19		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Nickel	6.3	0.29	0.96		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Selenium	ND	2.4	4.8		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Silver	ND	0.062	0.48		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Vanadium	13	0.13	4.8		mg/Kg	2	11/20/2019 6:55:17 PM	48558
Zinc	10	0.76	4.8		mg/Kg	2	11/20/2019 6:55:17 PM	48558
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Acenaphthylene	ND	0.098	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Aniline	ND	0.12	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Anthracene	ND	0.096	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Azobenzene	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Benz(a)anthracene	ND	0.086	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:05:00 AM
Lab ID: 1910F75-003
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.080	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Benzo(b)fluoranthene	ND	0.079	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Benzo(g,h,i)perylene	ND	0.077	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Benzo(k)fluoranthene	ND	0.081	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Benzoic acid	ND	0.093	0.45		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Benzyl alcohol	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Bis(2-chloroethoxy)methane	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Bis(2-chloroethyl)ether	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.10	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Bis(2-ethylhexyl)phthalate	ND	0.13	0.45		mg/Kg	1	11/8/2019 8:06:38 PM	48536
4-Bromophenyl phenyl ether	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Butyl benzyl phthalate	ND	0.092	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Carbazole	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
4-Chloro-3-methylphenol	ND	0.14	0.45		mg/Kg	1	11/8/2019 8:06:38 PM	48536
4-Chloroaniline	ND	0.13	0.45		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2-Chloronaphthalene	ND	0.11	0.22		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2-Chlorophenol	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
4-Chlorophenyl phenyl ether	ND	0.098	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Chrysene	ND	0.079	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Di-n-butyl phthalate	ND	0.13	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Di-n-octyl phthalate	ND	0.091	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Dibenz(a,h)anthracene	ND	0.082	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Dibenzofuran	ND	0.12	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
1,2-Dichlorobenzene	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
1,3-Dichlorobenzene	ND	0.094	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
1,4-Dichlorobenzene	ND	0.096	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
3,3´-Dichlorobenzidine	ND	0.080	0.22		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Diethyl phthalate	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Dimethyl phthalate	ND	0.12	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2,4-Dichlorophenol	ND	0.10	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2,4-Dimethylphenol	ND	0.099	0.27		mg/Kg	1	11/8/2019 8:06:38 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.083	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2,4-Dinitrophenol	ND	0.065	0.45		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2,4-Dinitrotoluene	ND	0.11	0.45		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2,6-Dinitrotoluene	ND	0.12	0.45		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Fluoranthene	ND	0.10	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Fluorene	ND	0.10	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Hexachlorobenzene	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Hexachlorobutadiene	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:05:00 AM
Lab ID: 1910F75-003
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.10	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Hexachloroethane	ND	0.10	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.089	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Isophorone	ND	0.13	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
1-Methylnaphthalene	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2-Methylnaphthalene	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2-Methylphenol	ND	0.11	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
3+4-Methylphenol	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
N-Nitrosodi-n-propylamine	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
N-Nitrosodiphenylamine	ND	0.094	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Naphthalene	ND	0.14	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2-Nitroaniline	ND	0.13	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
3-Nitroaniline	ND	0.12	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
4-Nitroaniline	ND	0.11	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Nitrobenzene	ND	0.12	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2-Nitrophenol	ND	0.12	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
4-Nitrophenol	ND	0.12	0.22		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Pentachlorophenol	ND	0.092	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Phenanthrene	ND	0.097	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Phenol	ND	0.11	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Pyrene	ND	0.084	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Pyridine	ND	0.11	0.36		mg/Kg	1	11/8/2019 8:06:38 PM	48536
1,2,4-Trichlorobenzene	ND	0.14	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2,4,5-Trichlorophenol	ND	0.12	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
2,4,6-Trichlorophenol	ND	0.094	0.18		mg/Kg	1	11/8/2019 8:06:38 PM	48536
Surr: 2-Fluorophenol	53.4		26.7-85.9		%Rec	1	11/8/2019 8:06:38 PM	48536
Surr: Phenol-d5	56.0		18.5-101		%Rec	1	11/8/2019 8:06:38 PM	48536
Surr: 2,4,6-Tribromophenol	67.3		35.8-85.6		%Rec	1	11/8/2019 8:06:38 PM	48536
Surr: Nitrobenzene-d5	61.8		40.8-95.2		%Rec	1	11/8/2019 8:06:38 PM	48536
Surr: 2-Fluorobiphenyl	63.0		34.7-85.2		%Rec	1	11/8/2019 8:06:38 PM	48536
Surr: 4-Terphenyl-d14	68.5		37.4-91.3		%Rec	1	11/8/2019 8:06:38 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0024	0.015		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Toluene	ND	0.0028	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Ethylbenzene	ND	0.0017	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0070	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2,4-Trimethylbenzene	ND	0.0027	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,3,5-Trimethylbenzene	ND	0.0029	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2-Dichloroethane (EDC)	ND	0.0030	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:05:00 AM
Lab ID: 1910F75-003
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0027	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Naphthalene	ND	0.0059	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1-Methylnaphthalene	ND	0.017	0.12		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Acetone	ND	0.025	0.45		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Bromobenzene	ND	0.0028	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Bromodichloromethane	ND	0.0027	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Bromoform	ND	0.0027	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Bromomethane	ND	0.0072	0.089		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
2-Butanone	0.064	0.034	0.30	J	mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Carbon disulfide	ND	0.0098	0.30		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Carbon tetrachloride	ND	0.0028	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Chlorobenzene	ND	0.0038	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Chloroethane	ND	0.0044	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Chloroform	ND	0.0024	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Chloromethane	ND	0.0028	0.089		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
2-Chlorotoluene	ND	0.0026	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
4-Chlorotoluene	ND	0.0024	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
cis-1,2-DCE	ND	0.0041	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
cis-1,3-Dichloropropene	ND	0.0025	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0030	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Dibromochloromethane	ND	0.0021	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Dibromomethane	ND	0.0032	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2-Dichlorobenzene	ND	0.0024	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,3-Dichlorobenzene	ND	0.0026	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,4-Dichlorobenzene	ND	0.0025	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Dichlorodifluoromethane	ND	0.0069	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,1-Dichloroethane	ND	0.0019	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,1-Dichloroethene	ND	0.012	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2-Dichloropropane	ND	0.0022	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,3-Dichloropropane	ND	0.0032	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
2,2-Dichloropropane	ND	0.0097	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,1-Dichloropropene	ND	0.0027	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Hexachlorobutadiene	ND	0.0030	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
2-Hexanone	ND	0.0049	0.30		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Isopropylbenzene	ND	0.0021	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
4-Isopropyltoluene	ND	0.0025	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
4-Methyl-2-pentanone	ND	0.0056	0.30		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Methylene chloride	ND	0.0052	0.089		mg/Kg	1	11/1/2019 9:29:07 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:05:00 AM
Lab ID: 1910F75-003
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0028	0.089		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
n-Propylbenzene	ND	0.0024	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
sec-Butylbenzene	ND	0.0033	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Styrene	ND	0.0023	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
tert-Butylbenzene	ND	0.0028	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0020	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0030	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Tetrachloroethene (PCE)	ND	0.0024	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
trans-1,2-DCE	ND	0.0027	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
trans-1,3-Dichloropropene	ND	0.0031	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2,3-Trichlorobenzene	ND	0.0026	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2,4-Trichlorobenzene	ND	0.0030	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,1,1-Trichloroethane	ND	0.0027	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,1,2-Trichloroethane	ND	0.0021	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Trichloroethene (TCE)	ND	0.0034	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Trichlorofluoromethane	ND	0.010	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
1,2,3-Trichloropropane	ND	0.0048	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Vinyl chloride	ND	0.0019	0.030		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Xylenes, Total	ND	0.0075	0.059		mg/Kg	1	11/1/2019 9:29:07 PM	A64178
Surr: Dibromofluoromethane	110		70-130		%Rec	1	11/1/2019 9:29:07 PM	A64178
Surr: 1,2-Dichloroethane-d4	99.6		70-130		%Rec	1	11/1/2019 9:29:07 PM	A64178
Surr: Toluene-d8	107		70-130		%Rec	1	11/1/2019 9:29:07 PM	A64178
Surr: 4-Bromofluorobenzene	94.1		70-130		%Rec	1	11/1/2019 9:29:07 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:17:00 AM
Lab ID: 1910F75-004
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	13	1.8	8.9		mg/Kg	1	11/5/2019 8:56:52 AM	48544
Motor Oil Range Organics (MRO)	ND	44	44		mg/Kg	1	11/5/2019 8:56:52 AM	48544
Surr: DNOP	105	0	70-130		%Rec	1	11/5/2019 8:56:52 AM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.82	2.7		mg/Kg	1	11/4/2019 2:14:18 PM	G64209
Surr: BFB	93.8	0	77.4-118		%Rec	1	11/4/2019 2:14:18 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	2.3	1.5	1.5		mg/Kg	5	11/6/2019 2:53:59 PM	48614
Chloride	19	7.5	7.5		mg/Kg	5	11/6/2019 2:53:59 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 2:53:59 PM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 2:53:59 PM	48614
Sulfate	43	7.5	7.5		mg/Kg	5	11/6/2019 2:53:59 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0021	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:29:29 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.71	4.8		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Arsenic	ND	2.8	4.8		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Barium	220	0.045	0.19		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Beryllium	0.87	0.018	0.29		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Cadmium	ND	0.047	0.19		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Chromium	7.2	0.15	0.58		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Cobalt	3.6	0.20	0.58		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Iron	12000	70	240		mg/Kg	100	11/20/2019 7:00:13 PM	48626
Lead	2.8	0.47	0.48		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Manganese	250	0.040	0.19		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Nickel	7.5	0.29	0.96		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Selenium	ND	2.4	4.8		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Silver	ND	0.062	0.48		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Vanadium	14	0.13	4.8		mg/Kg	2	11/20/2019 6:58:36 PM	48626
Zinc	13	0.76	4.8		mg/Kg	2	11/20/2019 6:58:36 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Aniline	ND	0.13	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Anthracene	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Benz(a)anthracene	ND	0.096	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:17:00 AM
Lab ID: 1910F75-004
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.088	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Benzo(b)fluoranthene	ND	0.088	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Benzo(g,h,i)perylene	ND	0.085	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Benzo(k)fluoranthene	ND	0.090	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Benzoic acid	ND	0.10	0.50		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Bis(2-ethylhexyl)phthalate	ND	0.14	0.50		mg/Kg	1	11/8/2019 8:35:10 PM	48536
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Carbazole	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
4-Chloro-3-methylphenol	ND	0.15	0.50		mg/Kg	1	11/8/2019 8:35:10 PM	48536
4-Chloroaniline	ND	0.14	0.50		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2-Chloronaphthalene	ND	0.12	0.25		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Chrysene	ND	0.087	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Di-n-butyl phthalate	0.16	0.15	0.40	J	mg/Kg	1	11/8/2019 8:35:10 PM	48536
Di-n-octyl phthalate	ND	0.10	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Dibenz(a,h)anthracene	ND	0.090	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
1,3-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
1,4-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
3,3´-Dichlorobenzidine	ND	0.088	0.25		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2,4-Dichlorophenol	ND	0.12	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg	1	11/8/2019 8:35:10 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.092	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2,4-Dinitrophenol	ND	0.072	0.50		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2,6-Dinitrotoluene	ND	0.13	0.50		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Fluorene	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:17:00 AM
Lab ID: 1910F75-004
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.099	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Isophorone	ND	0.15	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2-Methylnaphthalene	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2-Methylphenol	ND	0.12	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Nitrobenzene	ND	0.14	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2-Nitrophenol	ND	0.14	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
4-Nitrophenol	ND	0.13	0.25		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Pentachlorophenol	ND	0.10	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Phenol	ND	0.12	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Pyrene	ND	0.093	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Pyridine	ND	0.12	0.40		mg/Kg	1	11/8/2019 8:35:10 PM	48536
1,2,4-Trichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
2,4,6-Trichlorophenol	ND	0.10	0.20		mg/Kg	1	11/8/2019 8:35:10 PM	48536
Surr: 2-Fluorophenol	64.6		26.7-85.9		%Rec	1	11/8/2019 8:35:10 PM	48536
Surr: Phenol-d5	70.8		18.5-101		%Rec	1	11/8/2019 8:35:10 PM	48536
Surr: 2,4,6-Tribromophenol	80.4		35.8-85.6		%Rec	1	11/8/2019 8:35:10 PM	48536
Surr: Nitrobenzene-d5	75.9		40.8-95.2		%Rec	1	11/8/2019 8:35:10 PM	48536
Surr: 2-Fluorobiphenyl	73.2		34.7-85.2		%Rec	1	11/8/2019 8:35:10 PM	48536
Surr: 4-Terphenyl-d14	77.7		37.4-91.3		%Rec	1	11/8/2019 8:35:10 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0022	0.014		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Toluene	ND	0.0026	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Ethylbenzene	ND	0.0016	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0064	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2,4-Trimethylbenzene	ND	0.0025	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,3,5-Trimethylbenzene	ND	0.0026	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2-Dichloroethane (EDC)	ND	0.0028	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:17:00 AM
Lab ID: 1910F75-004
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0025	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Naphthalene	ND	0.0054	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1-Methylnaphthalene	ND	0.016	0.11		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Acetone	ND	0.022	0.41		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Bromobenzene	ND	0.0026	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Bromodichloromethane	ND	0.0025	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Bromoform	ND	0.0024	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Bromomethane	ND	0.0065	0.081		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
2-Butanone	ND	0.031	0.27		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Carbon disulfide	ND	0.0089	0.27		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Carbon tetrachloride	ND	0.0026	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Chlorobenzene	ND	0.0035	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Chloroethane	ND	0.0040	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Chloroform	ND	0.0022	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Chloromethane	ND	0.0026	0.081		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
2-Chlorotoluene	ND	0.0024	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
4-Chlorotoluene	ND	0.0022	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
cis-1,2-DCE	ND	0.0037	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
cis-1,3-Dichloropropene	ND	0.0023	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0028	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Dibromochloromethane	ND	0.0019	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Dibromomethane	ND	0.0029	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2-Dichlorobenzene	ND	0.0022	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,3-Dichlorobenzene	ND	0.0024	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,4-Dichlorobenzene	ND	0.0023	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Dichlorodifluoromethane	ND	0.0063	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,1-Dichloroethane	ND	0.0017	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,1-Dichloroethene	ND	0.011	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2-Dichloropropane	ND	0.0020	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,3-Dichloropropane	ND	0.0029	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
2,2-Dichloropropane	ND	0.0088	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,1-Dichloropropene	ND	0.0025	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Hexachlorobutadiene	ND	0.0028	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
2-Hexanone	ND	0.0045	0.27		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Isopropylbenzene	ND	0.0020	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
4-Isopropyltoluene	ND	0.0022	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
4-Methyl-2-pentanone	ND	0.0051	0.27		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Methylene chloride	ND	0.0048	0.081		mg/Kg	1	11/1/2019 11:54:46 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-2 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:17:00 AM
Lab ID: 1910F75-004 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0025	0.081		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
n-Propylbenzene	ND	0.0022	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
sec-Butylbenzene	ND	0.0031	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Styrene	ND	0.0021	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
tert-Butylbenzene	ND	0.0026	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0018	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0027	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Tetrachloroethene (PCE)	ND	0.0022	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
trans-1,2-DCE	ND	0.0025	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
trans-1,3-Dichloropropene	ND	0.0029	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2,3-Trichlorobenzene	ND	0.0024	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2,4-Trichlorobenzene	ND	0.0027	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,1,1-Trichloroethane	ND	0.0024	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,1,2-Trichloroethane	ND	0.0019	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Trichloroethene (TCE)	ND	0.0031	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Trichlorofluoromethane	ND	0.0092	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
1,2,3-Trichloropropane	ND	0.0044	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Vinyl chloride	ND	0.0018	0.027		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Xylenes, Total	ND	0.0068	0.054		mg/Kg	1	11/1/2019 11:54:46 PM	A64178
Surr: Dibromofluoromethane	108		70-130		%Rec	1	11/1/2019 11:54:46 PM	A64178
Surr: 1,2-Dichloroethane-d4	97.8		70-130		%Rec	1	11/1/2019 11:54:46 PM	A64178
Surr: Toluene-d8	105		70-130		%Rec	1	11/1/2019 11:54:46 PM	A64178
Surr: 4-Bromofluorobenzene	90.1		70-130		%Rec	1	11/1/2019 11:54:46 PM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL2 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:30:00 AM
Lab ID: 1910F75-005 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	6.1	1.7	8.5	J	mg/Kg	1	11/5/2019 9:06:01 AM	48544
Motor Oil Range Organics (MRO)	ND	43	43		mg/Kg	1	11/5/2019 9:06:01 AM	48544
Surr: DNOP	102	0	70-130		%Rec	1	11/5/2019 9:06:01 AM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	3.5		mg/Kg	1	11/4/2019 2:37:23 PM	G64209
Surr: BFB	93.5	0	77.4-118		%Rec	1	11/4/2019 2:37:23 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/6/2019 3:18:48 PM	48614
Chloride	7.6	7.5	7.5		mg/Kg	5	11/6/2019 3:18:48 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 3:18:48 PM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 3:18:48 PM	48614
Sulfate	38	7.5	7.5		mg/Kg	5	11/6/2019 3:18:48 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	ND	0.0018	0.032		mg/Kg	1	11/7/2019 5:31:27 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.75	5.1		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Arsenic	ND	2.9	5.1		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Barium	220	0.047	0.20		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Beryllium	0.93	0.019	0.30		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Chromium	11	0.16	0.61		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Cobalt	5.7	0.21	0.61		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Iron	17000	74	250		mg/Kg	100	11/20/2019 7:03:22 PM	48626
Lead	3.2	0.49	0.51		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Manganese	750	2.1	10		mg/Kg	100	11/20/2019 7:03:22 PM	48626
Nickel	14	0.30	1.0		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Selenium	ND	2.6	5.1		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Silver	ND	0.065	0.51		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Vanadium	12	0.14	5.1		mg/Kg	2	11/20/2019 7:01:47 PM	48626
Zinc	16	0.80	5.1		mg/Kg	2	11/20/2019 7:01:47 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Aniline	ND	0.13	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Anthracene	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Benz(a)anthracene	ND	0.098	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL2 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:30:00 AM
Lab ID: 1910F75-005
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.090	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Benzo(b)fluoranthene	ND	0.090	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Benzo(g,h,i)perylene	ND	0.087	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Benzo(k)fluoranthene	ND	0.092	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Benzoic acid	ND	0.11	0.51		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Benzyl alcohol	ND	0.13	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Bis(2-ethylhexyl)phthalate	ND	0.15	0.51		mg/Kg	1	11/8/2019 9:03:39 PM	48536
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Carbazole	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
4-Chloro-3-methylphenol	ND	0.16	0.51		mg/Kg	1	11/8/2019 9:03:39 PM	48536
4-Chloroaniline	ND	0.14	0.51		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2-Chloronaphthalene	ND	0.13	0.25		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2-Chlorophenol	ND	0.13	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Chrysene	ND	0.090	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Di-n-butyl phthalate	ND	0.15	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Di-n-octyl phthalate	ND	0.10	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Dibenz(a,h)anthracene	ND	0.092	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
1,3-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
1,4-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
3,3´-Dichlorobenzidine	ND	0.090	0.25		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Diethyl phthalate	ND	0.15	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Dimethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2,4-Dichlorophenol	ND	0.12	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2,4-Dimethylphenol	ND	0.11	0.31		mg/Kg	1	11/8/2019 9:03:39 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.094	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2,4-Dinitrophenol	ND	0.074	0.51		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2,4-Dinitrotoluene	ND	0.12	0.51		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2,6-Dinitrotoluene	ND	0.13	0.51		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Fluorene	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Hexachlorobenzene	ND	0.13	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL2 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:30:00 AM
Lab ID: 1910F75-005
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.10	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Isophorone	ND	0.15	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2-Methylphenol	ND	0.12	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
N-Nitrosodi-n-propylamine	ND	0.15	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
N-Nitrosodiphenylamine	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2-Nitroaniline	ND	0.15	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
4-Nitroaniline	ND	0.13	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Nitrobenzene	ND	0.14	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2-Nitrophenol	ND	0.14	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
4-Nitrophenol	ND	0.14	0.25		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Pentachlorophenol	ND	0.10	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Phenol	ND	0.13	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Pyrene	ND	0.096	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Pyridine	ND	0.12	0.41		mg/Kg	1	11/8/2019 9:03:39 PM	48536
1,2,4-Trichlorobenzene	ND	0.16	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
2,4,6-Trichlorophenol	ND	0.11	0.20		mg/Kg	1	11/8/2019 9:03:39 PM	48536
Surr: 2-Fluorophenol	50.5		26.7-85.9		%Rec	1	11/8/2019 9:03:39 PM	48536
Surr: Phenol-d5	57.6		18.5-101		%Rec	1	11/8/2019 9:03:39 PM	48536
Surr: 2,4,6-Tribromophenol	72.6		35.8-85.6		%Rec	1	11/8/2019 9:03:39 PM	48536
Surr: Nitrobenzene-d5	61.1		40.8-95.2		%Rec	1	11/8/2019 9:03:39 PM	48536
Surr: 2-Fluorobiphenyl	65.3		34.7-85.2		%Rec	1	11/8/2019 9:03:39 PM	48536
Surr: 4-Terphenyl-d14	72.9		37.4-91.3		%Rec	1	11/8/2019 9:03:39 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0029	0.018		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Toluene	ND	0.0034	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Ethylbenzene	ND	0.0020	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0083	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2,4-Trimethylbenzene	ND	0.0032	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,3,5-Trimethylbenzene	ND	0.0034	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2-Dichloroethane (EDC)	ND	0.0036	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL2 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:30:00 AM
Lab ID: 1910F75-005
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0032	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Naphthalene	ND	0.0070	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1-Methylnaphthalene	ND	0.020	0.14		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
2-Methylnaphthalene	ND	0.015	0.14		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Acetone	ND	0.029	0.53		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Bromobenzene	ND	0.0034	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Bromodichloromethane	ND	0.0032	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Bromoform	ND	0.0032	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Bromomethane	ND	0.0085	0.11		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
2-Butanone	0.062	0.041	0.35	J	mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Carbon disulfide	ND	0.012	0.35		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Carbon tetrachloride	ND	0.0033	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Chlorobenzene	ND	0.0045	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Chloroethane	ND	0.0052	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Chloroform	ND	0.0028	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Chloromethane	ND	0.0034	0.11		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
2-Chlorotoluene	ND	0.0031	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
4-Chlorotoluene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
cis-1,2-DCE	ND	0.0048	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
cis-1,3-Dichloropropene	ND	0.0030	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0036	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Dibromochloromethane	ND	0.0025	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Dibromomethane	ND	0.0038	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2-Dichlorobenzene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,3-Dichlorobenzene	ND	0.0031	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,4-Dichlorobenzene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Dichlorodifluoromethane	ND	0.0082	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,1-Dichloroethane	ND	0.0022	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,1-Dichloroethene	ND	0.014	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2-Dichloropropane	ND	0.0026	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,3-Dichloropropane	ND	0.0038	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
2,2-Dichloropropane	ND	0.011	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,1-Dichloropropene	ND	0.0032	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Hexachlorobutadiene	ND	0.0036	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
2-Hexanone	ND	0.0058	0.35		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Isopropylbenzene	ND	0.0025	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
4-Isopropyltoluene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
4-Methyl-2-pentanone	ND	0.0066	0.35		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Methylene chloride	ND	0.0062	0.11		mg/Kg	1	11/2/2019 12:23:52 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL2 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 11:30:00 AM
Lab ID: 1910F75-005 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0033	0.11		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
n-Propylbenzene	ND	0.0028	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
sec-Butylbenzene	ND	0.0040	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Styrene	ND	0.0028	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
tert-Butylbenzene	ND	0.0033	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0024	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0036	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Tetrachloroethene (PCE)	ND	0.0028	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
trans-1,2-DCE	ND	0.0032	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
trans-1,3-Dichloropropene	ND	0.0037	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2,3-Trichlorobenzene	ND	0.0031	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2,4-Trichlorobenzene	ND	0.0036	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,1,1-Trichloroethane	ND	0.0032	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,1,2-Trichloroethane	ND	0.0025	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Trichloroethene (TCE)	ND	0.0041	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Trichlorofluoromethane	ND	0.012	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
1,2,3-Trichloropropane	ND	0.0057	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Vinyl chloride	ND	0.0023	0.035		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Xylenes, Total	ND	0.0089	0.070		mg/Kg	1	11/2/2019 12:23:52 AM	A64178
Surr: Dibromofluoromethane	112		70-130		%Rec	1	11/2/2019 12:23:52 AM	A64178
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	11/2/2019 12:23:52 AM	A64178
Surr: Toluene-d8	106		70-130		%Rec	1	11/2/2019 12:23:52 AM	A64178
Surr: 4-Bromofluorobenzene	90.5		70-130		%Rec	1	11/2/2019 12:23:52 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:40:00 PM
Lab ID: 1910F75-006 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	1300	19	94		mg/Kg	10	11/5/2019 9:15:10 AM	48544
Motor Oil Range Organics (MRO)	ND	470	470	D	mg/Kg	10	11/5/2019 9:15:10 AM	48544
Surr: DNOP	0	0	70-130	S	%Rec	10	11/5/2019 9:15:10 AM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.3	4.2		mg/Kg	1	11/4/2019 3:00:25 PM	G64209
Surr: BFB	95.4	0	77.4-118		%Rec	1	11/4/2019 3:00:25 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	3.7	1.5	1.5		mg/Kg	5	11/6/2019 3:43:38 PM	48614
Chloride	15	7.5	7.5		mg/Kg	5	11/6/2019 3:43:38 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 3:43:38 PM	48614
Nitrogen, Nitrate (As N)	13	1.5	1.5		mg/Kg	5	11/6/2019 3:43:38 PM	48614
Sulfate	140	7.5	7.5		mg/Kg	5	11/6/2019 3:43:38 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.025	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:33:26 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.77	5.2		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Arsenic	ND	3.0	5.2		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Barium	450	0.048	0.21		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Beryllium	1.4	0.019	0.31		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Cadmium	ND	0.051	0.21		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Chromium	8.7	0.17	0.63		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Cobalt	2.6	0.22	0.63		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Iron	11000	76	260		mg/Kg	100	11/20/2019 7:10:39 PM	48558
Lead	9.3	0.51	0.52		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Manganese	300	0.043	0.21		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Nickel	5.9	0.31	1.0		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Selenium	ND	2.6	5.2		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Silver	ND	0.067	0.52		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Vanadium	27	0.14	5.2		mg/Kg	2	11/20/2019 7:09:02 PM	48558
Zinc	36	0.83	5.2		mg/Kg	2	11/20/2019 7:09:02 PM	48558
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.24	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Acenaphthylene	ND	0.22	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Aniline	ND	0.26	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Anthracene	ND	0.22	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Azobenzene	ND	0.28	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Benz(a)anthracene	ND	0.19	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:40:00 PM
Lab ID: 1910F75-006
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.18	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Benzo(b)fluoranthene	ND	0.18	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Benzo(g,h,i)perylene	ND	0.17	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Benzo(k)fluoranthene	ND	0.18	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Benzoic acid	ND	0.21	1.0		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Benzyl alcohol	ND	0.25	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Bis(2-chloroethoxy)methane	ND	0.30	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Bis(2-chloroethyl)ether	ND	0.25	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Bis(2-chloroisopropyl)ether	ND	0.23	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Bis(2-ethylhexyl)phthalate	ND	0.29	1.0		mg/Kg	1	11/8/2019 9:32:14 PM	48536
4-Bromophenyl phenyl ether	ND	0.24	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Butyl benzyl phthalate	ND	0.21	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Carbazole	ND	0.24	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
4-Chloro-3-methylphenol	ND	0.31	1.0		mg/Kg	1	11/8/2019 9:32:14 PM	48536
4-Chloroaniline	ND	0.29	1.0		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2-Chloronaphthalene	ND	0.25	0.50		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2-Chlorophenol	ND	0.25	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
4-Chlorophenyl phenyl ether	ND	0.22	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Chrysene	ND	0.18	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Di-n-butyl phthalate	ND	0.30	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Di-n-octyl phthalate	ND	0.21	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Dibenz(a,h)anthracene	ND	0.18	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Dibenzofuran	ND	0.26	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
1,2-Dichlorobenzene	ND	0.24	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
1,3-Dichlorobenzene	ND	0.21	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
1,4-Dichlorobenzene	ND	0.21	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
3,3´-Dichlorobenzidine	ND	0.18	0.50		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Diethyl phthalate	ND	0.29	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Dimethyl phthalate	ND	0.27	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2,4-Dichlorophenol	ND	0.23	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2,4-Dimethylphenol	ND	0.22	0.60		mg/Kg	1	11/8/2019 9:32:14 PM	48536
4,6-Dinitro-2-methylphenol	ND	0.19	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2,4-Dinitrophenol	ND	0.15	1.0		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2,4-Dinitrotoluene	ND	0.24	1.0		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2,6-Dinitrotoluene	ND	0.26	1.0		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Fluoranthene	ND	0.23	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Fluorene	ND	0.23	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Hexachlorobenzene	ND	0.25	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Hexachlorobutadiene	ND	0.28	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:40:00 PM
Lab ID: 1910F75-006 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.23	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Hexachloroethane	ND	0.22	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Indeno(1,2,3-cd)pyrene	ND	0.20	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Isophorone	ND	0.30	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
1-Methylnaphthalene	ND	0.30	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2-Methylnaphthalene	ND	0.29	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2-Methylphenol	ND	0.24	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
3+4-Methylphenol	ND	0.25	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
N-Nitrosodi-n-propylamine	ND	0.29	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
N-Nitrosodiphenylamine	ND	0.21	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Naphthalene	ND	0.30	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2-Nitroaniline	ND	0.29	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
3-Nitroaniline	ND	0.28	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
4-Nitroaniline	ND	0.26	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Nitrobenzene	ND	0.28	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2-Nitrophenol	ND	0.27	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
4-Nitrophenol	ND	0.27	0.50		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Pentachlorophenol	ND	0.21	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Phenanthrene	ND	0.22	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Phenol	ND	0.25	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Pyrene	ND	0.19	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Pyridine	ND	0.24	0.81		mg/Kg	1	11/8/2019 9:32:14 PM	48536
1,2,4-Trichlorobenzene	ND	0.31	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2,4,5-Trichlorophenol	ND	0.26	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
2,4,6-Trichlorophenol	ND	0.21	0.40		mg/Kg	1	11/8/2019 9:32:14 PM	48536
Surr: 2-Fluorophenol	44.9		26.7-85.9		%Rec	1	11/8/2019 9:32:14 PM	48536
Surr: Phenol-d5	47.2		18.5-101		%Rec	1	11/8/2019 9:32:14 PM	48536
Surr: 2,4,6-Tribromophenol	52.8		35.8-85.6		%Rec	1	11/8/2019 9:32:14 PM	48536
Surr: Nitrobenzene-d5	47.5		40.8-95.2		%Rec	1	11/8/2019 9:32:14 PM	48536
Surr: 2-Fluorobiphenyl	52.8		34.7-85.2		%Rec	1	11/8/2019 9:32:14 PM	48536
Surr: 4-Terphenyl-d14	45.1		37.4-91.3		%Rec	1	11/8/2019 9:32:14 PM	48536
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0035	0.021		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Toluene	ND	0.0041	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Ethylbenzene	ND	0.0025	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.010	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2,4-Trimethylbenzene	ND	0.0039	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,3,5-Trimethylbenzene	ND	0.0041	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2-Dichloroethane (EDC)	ND	0.0043	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:40:00 PM
Lab ID: 1910F75-006 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0039	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Naphthalene	ND	0.0085	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1-Methylnaphthalene	ND	0.024	0.17		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
2-Methylnaphthalene	ND	0.019	0.17		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Acetone	ND	0.035	0.64		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Bromobenzene	ND	0.0041	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Bromodichloromethane	ND	0.0039	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Bromoform	ND	0.0038	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Bromomethane	ND	0.010	0.13		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
2-Butanone	0.062	0.049	0.42	J	mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Carbon disulfide	ND	0.014	0.42		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Carbon tetrachloride	ND	0.0040	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Chlorobenzene	ND	0.0054	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Chloroethane	ND	0.0062	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Chloroform	ND	0.0034	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Chloromethane	ND	0.0041	0.13		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
2-Chlorotoluene	ND	0.0037	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
4-Chlorotoluene	ND	0.0035	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
cis-1,2-DCE	ND	0.0058	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
cis-1,3-Dichloropropene	ND	0.0036	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0043	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Dibromochloromethane	ND	0.0030	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Dibromomethane	ND	0.0046	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2-Dichlorobenzene	ND	0.0035	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,3-Dichlorobenzene	ND	0.0037	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,4-Dichlorobenzene	ND	0.0035	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Dichlorodifluoromethane	ND	0.0098	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,1-Dichloroethane	ND	0.0027	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,1-Dichloroethene	ND	0.017	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2-Dichloropropane	ND	0.0031	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,3-Dichloropropane	ND	0.0046	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
2,2-Dichloropropane	ND	0.014	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,1-Dichloropropene	ND	0.0039	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Hexachlorobutadiene	ND	0.0043	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
2-Hexanone	ND	0.0070	0.42		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Isopropylbenzene	ND	0.0031	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
4-Isopropyltoluene	ND	0.0035	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
4-Methyl-2-pentanone	ND	0.0080	0.42		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Methylene chloride	ND	0.0075	0.13		mg/Kg	1	11/2/2019 12:52:55 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:40:00 PM
Lab ID: 1910F75-006 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0040	0.13		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
n-Propylbenzene	ND	0.0034	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
sec-Butylbenzene	ND	0.0048	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Styrene	ND	0.0033	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
tert-Butylbenzene	ND	0.0040	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0029	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0043	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Tetrachloroethene (PCE)	ND	0.0034	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
trans-1,2-DCE	ND	0.0039	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
trans-1,3-Dichloropropene	ND	0.0045	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2,3-Trichlorobenzene	ND	0.0037	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2,4-Trichlorobenzene	ND	0.0043	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,1,1-Trichloroethane	ND	0.0038	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,1,2-Trichloroethane	ND	0.0030	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Trichloroethene (TCE)	ND	0.0049	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Trichlorofluoromethane	ND	0.014	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
1,2,3-Trichloropropane	ND	0.0069	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Vinyl chloride	ND	0.0028	0.042		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Xylenes, Total	ND	0.011	0.085		mg/Kg	1	11/2/2019 12:52:55 AM	A64178
Surr: Dibromofluoromethane	109		70-130		%Rec	1	11/2/2019 12:52:55 AM	A64178
Surr: 1,2-Dichloroethane-d4	98.3		70-130		%Rec	1	11/2/2019 12:52:55 AM	A64178
Surr: Toluene-d8	103		70-130		%Rec	1	11/2/2019 12:52:55 AM	A64178
Surr: 4-Bromofluorobenzene	86.9		70-130		%Rec	1	11/2/2019 12:52:55 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:55:00 PM
Lab ID: 1910F75-007
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	15	1.9	9.3		mg/Kg	1	11/6/2019 4:06:25 PM	48544
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	11/6/2019 4:06:25 PM	48544
Surr: DNOP	114	0	70-130		%Rec	1	11/6/2019 4:06:25 PM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.94	3.1		mg/Kg	1	11/4/2019 3:23:15 PM	G64209
Surr: BFB	94.4	0	77.4-118		%Rec	1	11/4/2019 3:23:15 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	2.7	1.5	1.5		mg/Kg	5	11/6/2019 4:33:16 PM	48614
Chloride	180	7.5	7.5		mg/Kg	5	11/6/2019 4:33:16 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 4:33:16 PM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 4:33:16 PM	48614
Sulfate	780	30	30		mg/Kg	20	11/6/2019 4:45:40 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.0072	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:35:26 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.76	5.1		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Arsenic	ND	2.9	5.1		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Barium	200	0.048	0.21		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Beryllium	0.89	0.019	0.31		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Cadmium	ND	0.050	0.21		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Chromium	7.8	0.16	0.62		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Cobalt	4.3	0.22	0.62		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Iron	13000	75	260		mg/Kg	100	11/20/2019 7:16:14 PM	48558
Lead	4.4	0.50	0.51		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Manganese	250	0.043	0.21		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Nickel	8.0	0.31	1.0		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Selenium	ND	2.6	5.1		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Silver	ND	0.066	0.51		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Vanadium	16	0.14	5.1		mg/Kg	2	11/20/2019 7:14:37 PM	48558
Zinc	12	0.81	5.1		mg/Kg	2	11/20/2019 7:14:37 PM	48558
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Acenaphthylene	ND	0.10	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Aniline	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Anthracene	ND	0.10	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Azobenzene	ND	0.13	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Benz(a)anthracene	ND	0.090	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:55:00 PM
Lab ID: 1910F75-007
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.083	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Benzo(b)fluoranthene	ND	0.082	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Benzo(g,h,i)perylene	ND	0.080	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Benzo(k)fluoranthene	ND	0.085	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Benzoic acid	ND	0.096	0.47		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Bis(2-chloroethyl)ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Bis(2-ethylhexyl)phthalate	ND	0.13	0.47		mg/Kg	1	11/9/2019 9:54:38 AM	48568
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Butyl benzyl phthalate	ND	0.095	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Carbazole	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
4-Chloro-3-methylphenol	ND	0.14	0.47		mg/Kg	1	11/9/2019 9:54:38 AM	48568
4-Chloroaniline	ND	0.13	0.47		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2-Chloronaphthalene	ND	0.12	0.23		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
4-Chlorophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Chrysene	ND	0.082	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Di-n-butyl phthalate	ND	0.14	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Di-n-octyl phthalate	ND	0.095	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Dibenz(a,h)anthracene	ND	0.085	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Dibenzofuran	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
1,2-Dichlorobenzene	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
1,3-Dichlorobenzene	ND	0.098	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
1,4-Dichlorobenzene	ND	0.099	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
3,3´-Dichlorobenzidine	ND	0.083	0.23		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Diethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Dimethyl phthalate	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2,4-Dichlorophenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2,4-Dimethylphenol	ND	0.10	0.28		mg/Kg	1	11/9/2019 9:54:38 AM	48568
4,6-Dinitro-2-methylphenol	ND	0.086	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2,4-Dinitrophenol	ND	0.068	0.47		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2,6-Dinitrotoluene	ND	0.12	0.47		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Fluoranthene	ND	0.10	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Fluorene	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:55:00 PM
Lab ID: 1910F75-007
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Hexachloroethane	ND	0.10	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Indeno(1,2,3-cd)pyrene	ND	0.093	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Isophorone	ND	0.14	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2-Methylphenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
3+4-Methylphenol	ND	0.11	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
N-Nitrosodi-n-propylamine	ND	0.13	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
N-Nitrosodiphenylamine	ND	0.098	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Naphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Nitrobenzene	ND	0.13	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
4-Nitrophenol	ND	0.13	0.23		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Pentachlorophenol	ND	0.096	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Phenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Pyrene	ND	0.088	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Pyridine	ND	0.11	0.37		mg/Kg	1	11/9/2019 9:54:38 AM	48568
1,2,4-Trichlorobenzene	ND	0.14	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
2,4,6-Trichlorophenol	ND	0.098	0.19		mg/Kg	1	11/9/2019 9:54:38 AM	48568
Surr: 2-Fluorophenol	56.9		26.7-85.9		%Rec	1	11/9/2019 9:54:38 AM	48568
Surr: Phenol-d5	59.1		18.5-101		%Rec	1	11/9/2019 9:54:38 AM	48568
Surr: 2,4,6-Tribromophenol	69.4		35.8-85.6		%Rec	1	11/9/2019 9:54:38 AM	48568
Surr: Nitrobenzene-d5	65.0		40.8-95.2		%Rec	1	11/9/2019 9:54:38 AM	48568
Surr: 2-Fluorobiphenyl	64.4		34.7-85.2		%Rec	1	11/9/2019 9:54:38 AM	48568
Surr: 4-Terphenyl-d14	72.2		37.4-91.3		%Rec	1	11/9/2019 9:54:38 AM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0025	0.016		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Toluene	ND	0.0030	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Ethylbenzene	ND	0.0018	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0074	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2,4-Trimethylbenzene	ND	0.0028	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,3,5-Trimethylbenzene	ND	0.0030	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2-Dichloroethane (EDC)	ND	0.0032	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:55:00 PM
Lab ID: 1910F75-007
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0028	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Naphthalene	ND	0.0062	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1-Methylnaphthalene	ND	0.018	0.12		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
2-Methylnaphthalene	ND	0.014	0.12		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Acetone	ND	0.026	0.47		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Bromobenzene	ND	0.0030	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Bromodichloromethane	ND	0.0028	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Bromoform	ND	0.0028	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Bromomethane	ND	0.0075	0.093		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
2-Butanone	ND	0.036	0.31		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Carbon disulfide	ND	0.010	0.31		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Carbon tetrachloride	ND	0.0029	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Chlorobenzene	ND	0.0040	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Chloroethane	ND	0.0046	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Chloroform	ND	0.0025	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Chloromethane	ND	0.0030	0.093		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
2-Chlorotoluene	ND	0.0027	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
4-Chlorotoluene	ND	0.0025	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
cis-1,2-DCE	ND	0.0043	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
cis-1,3-Dichloropropene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0032	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Dibromochloromethane	ND	0.0022	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Dibromomethane	ND	0.0033	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2-Dichlorobenzene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,3-Dichlorobenzene	ND	0.0027	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,4-Dichlorobenzene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Dichlorodifluoromethane	ND	0.0072	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,1-Dichloroethane	ND	0.0020	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,1-Dichloroethene	ND	0.012	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2-Dichloropropane	ND	0.0023	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,3-Dichloropropane	ND	0.0034	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
2,2-Dichloropropane	ND	0.010	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,1-Dichloropropene	ND	0.0028	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Hexachlorobutadiene	ND	0.0032	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
2-Hexanone	ND	0.0052	0.31		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Isopropylbenzene	ND	0.0022	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
4-Isopropyltoluene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
4-Methyl-2-pentanone	ND	0.0059	0.31		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Methylene chloride	ND	0.0055	0.093		mg/Kg	1	11/2/2019 1:21:54 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 1:55:00 PM
Lab ID: 1910F75-007 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0029	0.093		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
n-Propylbenzene	ND	0.0025	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
sec-Butylbenzene	ND	0.0035	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Styrene	ND	0.0024	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
tert-Butylbenzene	ND	0.0029	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0021	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0032	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Tetrachloroethene (PCE)	ND	0.0025	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
trans-1,2-DCE	ND	0.0028	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
trans-1,3-Dichloropropene	ND	0.0033	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2,3-Trichlorobenzene	ND	0.0027	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2,4-Trichlorobenzene	ND	0.0031	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,1,1-Trichloroethane	ND	0.0028	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,1,2-Trichloroethane	ND	0.0022	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Trichloroethene (TCE)	ND	0.0036	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Trichlorofluoromethane	ND	0.011	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
1,2,3-Trichloropropane	ND	0.0050	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Vinyl chloride	ND	0.0020	0.031		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Xylenes, Total	ND	0.0078	0.062		mg/Kg	1	11/2/2019 1:21:54 AM	A64178
Surr: Dibromofluoromethane	108		70-130		%Rec	1	11/2/2019 1:21:54 AM	A64178
Surr: 1,2-Dichloroethane-d4	97.2		70-130		%Rec	1	11/2/2019 1:21:54 AM	A64178
Surr: Toluene-d8	106		70-130		%Rec	1	11/2/2019 1:21:54 AM	A64178
Surr: 4-Bromofluorobenzene	91.8		70-130		%Rec	1	11/2/2019 1:21:54 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:05:00 PM
Lab ID: 1910F75-008 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	4.0	1.6	8.0	J	mg/Kg	1	11/5/2019 9:33:28 AM	48544
Motor Oil Range Organics (MRO)	ND	40	40		mg/Kg	1	11/5/2019 9:33:28 AM	48544
Surr: DNOP	128	0	70-130		%Rec	1	11/5/2019 9:33:28 AM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.73	2.4		mg/Kg	1	11/4/2019 3:46:06 PM	G64209
Surr: BFB	95.8	0	77.4-118		%Rec	1	11/4/2019 3:46:06 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	4.1	1.5	1.5		mg/Kg	5	11/6/2019 5:22:54 PM	48614
Chloride	17	7.5	7.5		mg/Kg	5	11/6/2019 5:22:54 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 5:22:54 PM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 5:22:54 PM	48614
Sulfate	63	7.5	7.5		mg/Kg	5	11/6/2019 5:22:54 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	ND	0.0018	0.033		mg/Kg	1	11/7/2019 5:37:26 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Arsenic	ND	2.9	5.0		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Barium	200	0.046	0.20		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Beryllium	0.83	0.018	0.30		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Chromium	7.2	0.16	0.60		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Cobalt	3.9	0.21	0.60		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Iron	12000	73	250		mg/Kg	100	11/20/2019 7:19:24 PM	48558
Lead	3.6	0.49	0.50		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Manganese	240	0.042	0.20		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Nickel	7.1	0.30	1.0		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Selenium	ND	2.5	5.0		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Silver	ND	0.064	0.50		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Vanadium	17	0.13	5.0		mg/Kg	2	11/20/2019 7:17:49 PM	48558
Zinc	11	0.79	5.0		mg/Kg	2	11/20/2019 7:17:49 PM	48558
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Aniline	ND	0.13	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Anthracene	ND	0.10	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Benz(a)anthracene	ND	0.095	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:05:00 PM
Lab ID: 1910F75-008
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.087	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Benzo(b)fluoranthene	ND	0.087	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Benzo(g,h,i)perylene	ND	0.084	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Benzo(k)fluoranthene	ND	0.089	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Benzoic acid	ND	0.10	0.49		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Bis(2-chloroethoxy)methane	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Bis(2-ethylhexyl)phthalate	ND	0.14	0.49		mg/Kg	1	11/9/2019 11:20:15 AM	48568
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Carbazole	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
4-Chloro-3-methylphenol	ND	0.15	0.49		mg/Kg	1	11/9/2019 11:20:15 AM	48568
4-Chloroaniline	ND	0.14	0.49		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2-Chloronaphthalene	ND	0.12	0.25		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Chrysene	ND	0.086	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Di-n-butyl phthalate	ND	0.15	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Di-n-octyl phthalate	ND	0.10	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Dibenz(a,h)anthracene	ND	0.089	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
1,3-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
1,4-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
3,3´-Dichlorobenzidine	ND	0.087	0.25		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2,4-Dichlorophenol	ND	0.11	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2,4-Dimethylphenol	ND	0.11	0.29		mg/Kg	1	11/9/2019 11:20:15 AM	48568
4,6-Dinitro-2-methylphenol	ND	0.091	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2,4-Dinitrophenol	ND	0.071	0.49		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2,4-Dinitrotoluene	ND	0.12	0.49		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2,6-Dinitrotoluene	ND	0.13	0.49		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Fluorene	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:05:00 PM
Lab ID: 1910F75-008
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Indeno(1,2,3-cd)pyrene	ND	0.098	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Isophorone	ND	0.14	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2-Methylnaphthalene	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2-Methylphenol	ND	0.12	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
4-Nitroaniline	ND	0.13	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Nitrobenzene	ND	0.14	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2-Nitrophenol	ND	0.13	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
4-Nitrophenol	ND	0.13	0.25		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Pentachlorophenol	ND	0.10	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Phenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Pyrene	ND	0.092	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Pyridine	ND	0.12	0.39		mg/Kg	1	11/9/2019 11:20:15 AM	48568
1,2,4-Trichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
2,4,6-Trichlorophenol	ND	0.10	0.20		mg/Kg	1	11/9/2019 11:20:15 AM	48568
Surr: 2-Fluorophenol	63.9		26.7-85.9		%Rec	1	11/9/2019 11:20:15 AM	48568
Surr: Phenol-d5	68.2		18.5-101		%Rec	1	11/9/2019 11:20:15 AM	48568
Surr: 2,4,6-Tribromophenol	76.8		35.8-85.6		%Rec	1	11/9/2019 11:20:15 AM	48568
Surr: Nitrobenzene-d5	71.0		40.8-95.2		%Rec	1	11/9/2019 11:20:15 AM	48568
Surr: 2-Fluorobiphenyl	67.8		34.7-85.2		%Rec	1	11/9/2019 11:20:15 AM	48568
Surr: 4-Terphenyl-d14	75.5		37.4-91.3		%Rec	1	11/9/2019 11:20:15 AM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0020	0.012		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Toluene	ND	0.0023	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Ethylbenzene	ND	0.0014	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0058	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2,4-Trimethylbenzene	ND	0.0022	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,3,5-Trimethylbenzene	ND	0.0023	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2-Dichloroethane (EDC)	ND	0.0025	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:05:00 PM
Lab ID: 1910F75-008
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0022	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Naphthalene	ND	0.0049	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1-Methylnaphthalene	ND	0.014	0.097		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
2-Methylnaphthalene	ND	0.011	0.097		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Acetone	ND	0.020	0.36		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Bromobenzene	ND	0.0023	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Bromodichloromethane	ND	0.0022	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Bromoform	ND	0.0022	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Bromomethane	ND	0.0059	0.073		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
2-Butanone	ND	0.028	0.24		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Carbon disulfide	ND	0.0080	0.24		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Carbon tetrachloride	ND	0.0023	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Chlorobenzene	ND	0.0031	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Chloroethane	ND	0.0036	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Chloroform	ND	0.0020	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Chloromethane	ND	0.0023	0.073		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
2-Chlorotoluene	ND	0.0021	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
4-Chlorotoluene	ND	0.0020	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
cis-1,2-DCE	ND	0.0033	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
cis-1,3-Dichloropropene	ND	0.0020	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0025	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Dibromochloromethane	ND	0.0017	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Dibromomethane	ND	0.0026	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2-Dichlorobenzene	ND	0.0020	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,3-Dichlorobenzene	ND	0.0021	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,4-Dichlorobenzene	ND	0.0020	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Dichlorodifluoromethane	ND	0.0056	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,1-Dichloroethane	ND	0.0016	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,1-Dichloroethene	ND	0.0097	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2-Dichloropropane	ND	0.0018	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,3-Dichloropropane	ND	0.0026	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
2,2-Dichloropropane	ND	0.0079	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,1-Dichloropropene	ND	0.0022	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Hexachlorobutadiene	ND	0.0025	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
2-Hexanone	ND	0.0040	0.24		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Isopropylbenzene	ND	0.0017	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
4-Isopropyltoluene	ND	0.0020	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
4-Methyl-2-pentanone	ND	0.0046	0.24		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Methylene chloride	ND	0.0043	0.073		mg/Kg	1	11/2/2019 1:50:54 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:05:00 PM
Lab ID: 1910F75-008
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0023	0.073		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
n-Propylbenzene	ND	0.0019	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
sec-Butylbenzene	ND	0.0027	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Styrene	ND	0.0019	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
tert-Butylbenzene	ND	0.0023	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0016	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0025	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Tetrachloroethene (PCE)	ND	0.0019	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
trans-1,2-DCE	ND	0.0022	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
trans-1,3-Dichloropropene	ND	0.0026	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2,3-Trichlorobenzene	ND	0.0021	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2,4-Trichlorobenzene	ND	0.0025	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,1,1-Trichloroethane	ND	0.0022	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,1,2-Trichloroethane	ND	0.0017	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Trichloroethene (TCE)	ND	0.0028	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Trichlorofluoromethane	ND	0.0082	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
1,2,3-Trichloropropane	ND	0.0039	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Vinyl chloride	ND	0.0016	0.024		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Xylenes, Total	ND	0.0061	0.049		mg/Kg	1	11/2/2019 1:50:54 AM	A64178
Surr: Dibromofluoromethane	107		70-130		%Rec	1	11/2/2019 1:50:54 AM	A64178
Surr: 1,2-Dichloroethane-d4	98.1		70-130		%Rec	1	11/2/2019 1:50:54 AM	A64178
Surr: Toluene-d8	105		70-130		%Rec	1	11/2/2019 1:50:54 AM	A64178
Surr: 4-Bromofluorobenzene	87.8		70-130		%Rec	1	11/2/2019 1:50:54 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:15:00 PM
Lab ID: 1910F75-009
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	4.1	1.7	8.6	J	mg/Kg	1	11/5/2019 9:42:38 AM	48544
Motor Oil Range Organics (MRO)	ND	43	43		mg/Kg	1	11/5/2019 9:42:38 AM	48544
Surr: DNOP	96.4	0	70-130		%Rec	1	11/5/2019 9:42:38 AM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.85	2.8		mg/Kg	1	11/4/2019 4:08:52 PM	G64209
Surr: BFB	97.4	0	77.4-118		%Rec	1	11/4/2019 4:08:52 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/6/2019 5:47:42 PM	48614
Chloride	ND	7.5	7.5		mg/Kg	5	11/6/2019 5:47:42 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 5:47:42 PM	48614
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 5:47:42 PM	48614
Sulfate	35	7.5	7.5		mg/Kg	5	11/6/2019 5:47:42 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	ND	0.0018	0.033		mg/Kg	1	11/7/2019 5:39:26 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Arsenic	ND	2.9	5.0		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Barium	100	0.047	0.20		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Beryllium	0.91	0.018	0.30		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Chromium	11	0.16	0.60		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Cobalt	5.7	0.21	0.60		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Iron	18000	73	250		mg/Kg	100	11/20/2019 7:22:47 PM	48626
Lead	2.4	0.49	0.50		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Manganese	390	0.042	0.20		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Nickel	15	0.30	1.0		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Selenium	ND	2.5	5.0		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Silver	ND	0.064	0.50		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Vanadium	13	0.13	5.0		mg/Kg	2	11/20/2019 7:21:11 PM	48626
Zinc	16	0.80	5.0		mg/Kg	2	11/20/2019 7:21:11 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Acenaphthylene	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Aniline	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Anthracene	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Azobenzene	ND	0.13	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Benz(a)anthracene	ND	0.091	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:15:00 PM
Lab ID: 1910F75-009
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.084	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Benzo(b)fluoranthene	ND	0.084	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Benzo(g,h,i)perylene	ND	0.081	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Benzo(k)fluoranthene	ND	0.086	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Benzoic acid	ND	0.098	0.47		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Bis(2-chloroethyl)ether	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Bis(2-ethylhexyl)phthalate	ND	0.14	0.47		mg/Kg	1	11/9/2019 11:48:52 AM	48568
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Butyl benzyl phthalate	ND	0.097	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Carbazole	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
4-Chloro-3-methylphenol	ND	0.15	0.47		mg/Kg	1	11/9/2019 11:48:52 AM	48568
4-Chloroaniline	ND	0.13	0.47		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2-Chloronaphthalene	ND	0.12	0.24		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
4-Chlorophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Chrysene	ND	0.084	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Di-n-butyl phthalate	ND	0.14	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Di-n-octyl phthalate	ND	0.097	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Dibenz(a,h)anthracene	ND	0.086	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Dibenzofuran	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
1,2-Dichlorobenzene	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
1,3-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
1,4-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
3,3´-Dichlorobenzidine	ND	0.084	0.24		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Diethyl phthalate	ND	0.14	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Dimethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2,4-Dichlorophenol	ND	0.11	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2,4-Dimethylphenol	ND	0.10	0.28		mg/Kg	1	11/9/2019 11:48:52 AM	48568
4,6-Dinitro-2-methylphenol	ND	0.088	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2,4-Dinitrophenol	ND	0.069	0.47		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2,6-Dinitrotoluene	ND	0.12	0.47		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Fluoranthene	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Fluorene	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:15:00 PM
Lab ID: 1910F75-009 **Matrix:** SOIL **Received Date:** 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Hexachloroethane	ND	0.11	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Indeno(1,2,3-cd)pyrene	ND	0.094	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Isophorone	ND	0.14	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2-Methylphenol	ND	0.11	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
3+4-Methylphenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
N-Nitrosodi-n-propylamine	ND	0.14	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
N-Nitrosodiphenylamine	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Naphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2-Nitroaniline	ND	0.14	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
4-Nitroaniline	ND	0.12	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Nitrobenzene	ND	0.13	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
4-Nitrophenol	ND	0.13	0.24		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Pentachlorophenol	ND	0.098	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Phenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Pyrene	ND	0.089	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Pyridine	ND	0.11	0.38		mg/Kg	1	11/9/2019 11:48:52 AM	48568
1,2,4-Trichlorobenzene	ND	0.15	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
2,4,6-Trichlorophenol	ND	0.10	0.19		mg/Kg	1	11/9/2019 11:48:52 AM	48568
Surr: 2-Fluorophenol	45.9		26.7-85.9		%Rec	1	11/9/2019 11:48:52 AM	48568
Surr: Phenol-d5	50.8		18.5-101		%Rec	1	11/9/2019 11:48:52 AM	48568
Surr: 2,4,6-Tribromophenol	52.1		35.8-85.6		%Rec	1	11/9/2019 11:48:52 AM	48568
Surr: Nitrobenzene-d5	53.0		40.8-95.2		%Rec	1	11/9/2019 11:48:52 AM	48568
Surr: 2-Fluorobiphenyl	54.6		34.7-85.2		%Rec	1	11/9/2019 11:48:52 AM	48568
Surr: 4-Terphenyl-d14	57.2		37.4-91.3		%Rec	1	11/9/2019 11:48:52 AM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0023	0.014		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Toluene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Ethylbenzene	ND	0.0016	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0067	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2,4-Trimethylbenzene	ND	0.0026	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,3,5-Trimethylbenzene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2-Dichloroethane (EDC)	ND	0.0029	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:15:00 PM
Lab ID: 1910F75-009
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0026	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Naphthalene	ND	0.0056	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1-Methylnaphthalene	ND	0.016	0.11		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Acetone	ND	0.023	0.42		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Bromobenzene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Bromodichloromethane	ND	0.0026	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Bromoform	ND	0.0025	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Bromomethane	ND	0.0068	0.085		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
2-Butanone	0.068	0.033	0.28	J	mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Carbon disulfide	ND	0.0093	0.28		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Carbon tetrachloride	ND	0.0027	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Chlorobenzene	ND	0.0036	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Chloroethane	ND	0.0042	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Chloroform	ND	0.0023	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Chloromethane	ND	0.0027	0.085		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
2-Chlorotoluene	ND	0.0025	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
4-Chlorotoluene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
cis-1,2-DCE	ND	0.0039	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
cis-1,3-Dichloropropene	ND	0.0024	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0029	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Dibromochloromethane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Dibromomethane	ND	0.0030	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,3-Dichlorobenzene	ND	0.0024	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,4-Dichlorobenzene	ND	0.0024	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Dichlorodifluoromethane	ND	0.0065	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,1-Dichloroethane	ND	0.0018	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,1-Dichloroethene	ND	0.011	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2-Dichloropropane	ND	0.0021	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,3-Dichloropropane	ND	0.0030	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
2,2-Dichloropropane	ND	0.0092	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,1-Dichloropropene	ND	0.0026	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Hexachlorobutadiene	ND	0.0029	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
2-Hexanone	ND	0.0047	0.28		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Isopropylbenzene	ND	0.0020	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
4-Isopropyltoluene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
4-Methyl-2-pentanone	ND	0.0053	0.28		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Methylene chloride	ND	0.0050	0.085		mg/Kg	1	11/2/2019 2:19:48 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-3 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 2:15:00 PM
Lab ID: 1910F75-009
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0026	0.085		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
n-Propylbenzene	ND	0.0022	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
sec-Butylbenzene	ND	0.0032	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Styrene	ND	0.0022	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
tert-Butylbenzene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0019	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0029	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Tetrachloroethene (PCE)	ND	0.0023	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
trans-1,2-DCE	ND	0.0026	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
trans-1,3-Dichloropropene	ND	0.0030	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2,3-Trichlorobenzene	ND	0.0025	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2,4-Trichlorobenzene	ND	0.0028	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,1,1-Trichloroethane	ND	0.0025	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,1,2-Trichloroethane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Trichloroethene (TCE)	ND	0.0033	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Trichlorofluoromethane	ND	0.0096	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
1,2,3-Trichloropropane	ND	0.0046	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Vinyl chloride	ND	0.0018	0.028		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Xylenes, Total	ND	0.0071	0.056		mg/Kg	1	11/2/2019 2:19:48 AM	A64178
Surr: Dibromofluoromethane	109		70-130		%Rec	1	11/2/2019 2:19:48 AM	A64178
Surr: 1,2-Dichloroethane-d4	96.5		70-130		%Rec	1	11/2/2019 2:19:48 AM	A64178
Surr: Toluene-d8	106		70-130		%Rec	1	11/2/2019 2:19:48 AM	A64178
Surr: 4-Bromofluorobenzene	86.1		70-130		%Rec	1	11/2/2019 2:19:48 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019
Lab ID: 1910F75-010
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	1200	19	95		mg/Kg	10	11/5/2019 9:51:46 AM	48544
Motor Oil Range Organics (MRO)	ND	470	470	D	mg/Kg	10	11/5/2019 9:51:46 AM	48544
Surr: DNOP	0	0	70-130	S	%Rec	10	11/5/2019 9:51:46 AM	48544
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.2	4.1		mg/Kg	1	11/4/2019 4:31:36 PM	G64209
Surr: BFB	95.9	0	77.4-118		%Rec	1	11/4/2019 4:31:36 PM	G64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	4.1	1.5	1.5		mg/Kg	5	11/6/2019 6:12:32 PM	48614
Chloride	15	7.5	7.5		mg/Kg	5	11/6/2019 6:12:32 PM	48614
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/6/2019 6:12:32 PM	48614
Nitrogen, Nitrate (As N)	12	1.5	1.5		mg/Kg	5	11/6/2019 6:12:32 PM	48614
Sulfate	160	7.5	7.5		mg/Kg	5	11/6/2019 6:12:32 PM	48614
EPA METHOD 7471: MERCURY							Analyst: **pmf**	
Mercury	0.021	0.0018	0.033	J	mg/Kg	1	11/7/2019 5:41:28 PM	48648
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.1		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Arsenic	ND	2.9	5.1		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Barium	460	0.047	0.20		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Beryllium	1.2	0.019	0.30		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Chromium	8.5	0.16	0.61		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Cobalt	2.8	0.21	0.61		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Iron	11000	73	250		mg/Kg	100	11/20/2019 7:25:57 PM	48558
Lead	6.2	0.49	0.51		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Manganese	300	0.042	0.20		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Nickel	6.5	0.30	1.0		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Selenium	ND	2.5	5.1		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Silver	ND	0.065	0.51		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Vanadium	23	0.13	5.1		mg/Kg	2	11/20/2019 7:24:22 PM	48558
Zinc	33	0.80	5.1		mg/Kg	2	11/20/2019 7:24:22 PM	48558
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Acenaphthylene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Aniline	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Anthracene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Azobenzene	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Benz(a)anthracene	ND	0.91	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019
Lab ID: 1910F75-010
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.84	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Benzo(b)fluoranthene	ND	0.83	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Benzo(g,h,i)perylene	ND	0.81	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Benzo(k)fluoranthene	ND	0.86	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Benzoic acid	ND	0.97	4.7	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Benzyl alcohol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Bis(2-chloroethoxy)methane	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Bis(2-chloroethyl)ether	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Bis(2-chloroisopropyl)ether	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Bis(2-ethylhexyl)phthalate	ND	1.4	4.7	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
4-Bromophenyl phenyl ether	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Butyl benzyl phthalate	ND	0.96	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Carbazole	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
4-Chloro-3-methylphenol	ND	1.4	4.7	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
4-Chloroaniline	ND	1.3	4.7	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2-Chloronaphthalene	ND	1.2	2.4	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2-Chlorophenol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
4-Chlorophenyl phenyl ether	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Chrysene	ND	0.83	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Di-n-butyl phthalate	ND	1.4	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Di-n-octyl phthalate	ND	0.96	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Dibenz(a,h)anthracene	ND	0.86	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Dibenzofuran	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
1,2-Dichlorobenzene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
1,3-Dichlorobenzene	ND	0.99	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
1,4-Dichlorobenzene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
3,3´-Dichlorobenzidine	ND	0.84	2.4	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Diethyl phthalate	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Dimethyl phthalate	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2,4-Dichlorophenol	ND	1.1	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2,4-Dimethylphenol	ND	1.0	2.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.87	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2,4-Dinitrophenol	ND	0.68	4.7	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2,4-Dinitrotoluene	ND	1.1	4.7	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2,6-Dinitrotoluene	ND	1.2	4.7	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Fluoranthene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Fluorene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Hexachlorobenzene	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Hexachlorobutadiene	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019
Lab ID: 1910F75-010
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Hexachloroethane	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.94	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Isophorone	ND	1.4	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
1-Methylnaphthalene	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2-Methylnaphthalene	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2-Methylphenol	ND	1.1	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
3+4-Methylphenol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
N-Nitrosodi-n-propylamine	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
N-Nitrosodiphenylamine	ND	0.99	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Naphthalene	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2-Nitroaniline	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
3-Nitroaniline	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
4-Nitroaniline	ND	1.2	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Nitrobenzene	ND	1.3	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2-Nitrophenol	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
4-Nitrophenol	ND	1.3	2.4	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Pentachlorophenol	ND	0.97	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Phenanthrene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Phenol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Pyrene	ND	0.88	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Pyridine	ND	1.1	3.8	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
1,2,4-Trichlorobenzene	ND	1.5	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2,4,5-Trichlorophenol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
2,4,6-Trichlorophenol	ND	0.99	1.9	D	mg/Kg	1	11/9/2019 12:17:33 PM	48568
Surr: 2-Fluorophenol	0		26.7-85.9	SD	%Rec	1	11/9/2019 12:17:33 PM	48568
Surr: Phenol-d5	0		18.5-101	SD	%Rec	1	11/9/2019 12:17:33 PM	48568
Surr: 2,4,6-Tribromophenol	0		35.8-85.6	SD	%Rec	1	11/9/2019 12:17:33 PM	48568
Surr: Nitrobenzene-d5	0		40.8-95.2	SD	%Rec	1	11/9/2019 12:17:33 PM	48568
Surr: 2-Fluorobiphenyl	0		34.7-85.2	SD	%Rec	1	11/9/2019 12:17:33 PM	48568
Surr: 4-Terphenyl-d14	0		37.4-91.3	SD	%Rec	1	11/9/2019 12:17:33 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0034	0.021		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Toluene	ND	0.0039	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Ethylbenzene	ND	0.0024	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.0098	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2,4-Trimethylbenzene	ND	0.0038	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,3,5-Trimethylbenzene	ND	0.0040	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2-Dichloroethane (EDC)	ND	0.0042	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019
Lab ID: 1910F75-010
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0038	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Naphthalene	ND	0.0082	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1-Methylnaphthalene	ND	0.024	0.16		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
2-Methylnaphthalene	ND	0.018	0.16		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Acetone	ND	0.034	0.62		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Bromobenzene	ND	0.0039	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Bromodichloromethane	ND	0.0038	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Bromoform	ND	0.0037	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Bromomethane	ND	0.0099	0.12		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
2-Butanone	ND	0.048	0.41		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Carbon disulfide	ND	0.014	0.41		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Carbon tetrachloride	ND	0.0039	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Chlorobenzene	ND	0.0053	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Chloroethane	ND	0.0061	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Chloroform	ND	0.0033	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Chloromethane	ND	0.0039	0.12		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
2-Chlorotoluene	ND	0.0036	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
4-Chlorotoluene	ND	0.0034	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
cis-1,2-DCE	ND	0.0056	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
cis-1,3-Dichloropropene	ND	0.0035	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0042	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Dibromochloromethane	ND	0.0029	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Dibromomethane	ND	0.0044	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2-Dichlorobenzene	ND	0.0034	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,3-Dichlorobenzene	ND	0.0036	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,4-Dichlorobenzene	ND	0.0034	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Dichlorodifluoromethane	ND	0.0096	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,1-Dichloroethane	ND	0.0026	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,1-Dichloroethene	ND	0.016	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2-Dichloropropane	ND	0.0030	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,3-Dichloropropane	ND	0.0045	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
2,2-Dichloropropane	ND	0.013	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,1-Dichloropropene	ND	0.0038	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Hexachlorobutadiene	ND	0.0042	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
2-Hexanone	ND	0.0068	0.41		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Isopropylbenzene	ND	0.0030	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
4-Isopropyltoluene	ND	0.0034	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
4-Methyl-2-pentanone	ND	0.0078	0.41		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Methylene chloride	ND	0.0073	0.12		mg/Kg	1	11/2/2019 2:48:41 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019
Lab ID: 1910F75-010
Matrix: SOIL
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0038	0.12		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
n-Propylbenzene	ND	0.0033	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
sec-Butylbenzene	ND	0.0046	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Styrene	ND	0.0032	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
tert-Butylbenzene	ND	0.0039	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0028	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0042	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Tetrachloroethene (PCE)	ND	0.0033	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
trans-1,2-DCE	ND	0.0038	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
trans-1,3-Dichloropropene	ND	0.0044	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2,3-Trichlorobenzene	ND	0.0036	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2,4-Trichlorobenzene	ND	0.0042	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,1,1-Trichloroethane	ND	0.0037	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,1,2-Trichloroethane	ND	0.0029	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Trichloroethene (TCE)	ND	0.0048	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Trichlorofluoromethane	ND	0.014	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
1,2,3-Trichloropropane	ND	0.0067	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Vinyl chloride	ND	0.0027	0.041		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Xylenes, Total	ND	0.010	0.082		mg/Kg	1	11/2/2019 2:48:41 AM	A64178
Surr: Dibromofluoromethane	110		70-130		%Rec	1	11/2/2019 2:48:41 AM	A64178
Surr: 1,2-Dichloroethane-d4	99.0		70-130		%Rec	1	11/2/2019 2:48:41 AM	A64178
Surr: Toluene-d8	103		70-130		%Rec	1	11/2/2019 2:48:41 AM	A64178
Surr: 4-Bromofluorobenzene	87.3		70-130		%Rec	1	11/2/2019 2:48:41 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: MeOH Blank
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1910F75-011
Matrix: MEOH BLAN
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0041	0.025		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Toluene	ND	0.0048	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Ethylbenzene	ND	0.0029	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Methyl tert-butyl ether (MTBE)	ND	0.012	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2,4-Trimethylbenzene	ND	0.0046	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,3,5-Trimethylbenzene	ND	0.0048	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2-Dichloroethane (EDC)	ND	0.0051	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2-Dibromoethane (EDB)	ND	0.0046	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Naphthalene	ND	0.010	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1-Methylnaphthalene	ND	0.029	0.20		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
2-Methylnaphthalene	ND	0.022	0.20		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Acetone	ND	0.041	0.75		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Bromobenzene	ND	0.0048	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Bromodichloromethane	ND	0.0046	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Bromoform	ND	0.0045	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Bromomethane	ND	0.012	0.15		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
2-Butanone	0.16	0.058	0.50	J	mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Carbon disulfide	ND	0.017	0.50		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Carbon tetrachloride	ND	0.0047	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Chlorobenzene	ND	0.0064	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Chloroethane	ND	0.0074	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Chloroform	ND	0.0040	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Chloromethane	ND	0.0048	0.15		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
2-Chlorotoluene	ND	0.0044	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
4-Chlorotoluene	ND	0.0041	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
cis-1,2-DCE	ND	0.0068	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
cis-1,3-Dichloropropene	ND	0.0042	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2-Dibromo-3-chloropropane	ND	0.0051	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Dibromochloromethane	ND	0.0035	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Dibromomethane	ND	0.0054	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,3-Dichlorobenzene	ND	0.0043	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,4-Dichlorobenzene	ND	0.0042	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Dichlorodifluoromethane	ND	0.012	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,1-Dichloroethane	ND	0.0032	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2-Dichloropropane	ND	0.0036	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,3-Dichloropropane	ND	0.0054	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
2,2-Dichloropropane	ND	0.016	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: MeOH Blank
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1910F75-011
Matrix: MEOH BLAN
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.0046	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Hexachlorobutadiene	ND	0.0051	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
2-Hexanone	ND	0.0083	0.50		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Isopropylbenzene	ND	0.0036	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
4-Isopropyltoluene	ND	0.0041	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
4-Methyl-2-pentanone	ND	0.0094	0.50		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Methylene chloride	ND	0.0088	0.15		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
n-Butylbenzene	ND	0.0047	0.15		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
n-Propylbenzene	ND	0.0040	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
sec-Butylbenzene	ND	0.0056	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Styrene	ND	0.0039	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
tert-Butylbenzene	ND	0.0047	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,1,1,2-Tetrachloroethane	ND	0.0034	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,1,2,2-Tetrachloroethane	ND	0.0051	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
trans-1,2-DCE	ND	0.0046	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
trans-1,3-Dichloropropene	ND	0.0053	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2,3-Trichlorobenzene	ND	0.0044	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2,4-Trichlorobenzene	ND	0.0051	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,1,1-Trichloroethane	ND	0.0045	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,1,2-Trichloroethane	ND	0.0035	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Trichloroethene (TCE)	ND	0.0058	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Trichlorofluoromethane	ND	0.017	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
1,2,3-Trichloropropane	ND	0.0081	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Vinyl chloride	ND	0.0033	0.050		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Xylenes, Total	ND	0.013	0.10		mg/Kg	1	11/2/2019 3:17:31 AM	A64178
Surr: Dibromofluoromethane	107		70-130		%Rec	1	11/2/2019 3:17:31 AM	A64178
Surr: 1,2-Dichloroethane-d4	92.4		70-130		%Rec	1	11/2/2019 3:17:31 AM	A64178
Surr: Toluene-d8	105		70-130		%Rec	1	11/2/2019 3:17:31 AM	A64178
Surr: 4-Bromofluorobenzene	87.4		70-130		%Rec	1	11/2/2019 3:17:31 AM	A64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102919
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 3:25:00 PM
Lab ID: 1910F75-012
Matrix: AQUEOUS
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/5/2019 5:40:45 PM	48575
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/5/2019 5:40:45 PM	48575
Surr: DNOP	96.9	0	81.5-152		%Rec	1	11/5/2019 5:40:45 PM	48575
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	ND	0.14	0.50		mg/L	5	11/4/2019 2:28:42 PM	R64204
Chloride	ND	2.5	2.5		mg/L	5	11/4/2019 2:28:42 PM	R64204
Sulfate	0.43	0.33	2.5	J	mg/L	5	11/4/2019 2:28:42 PM	R64204
Nitrate+Nitrite as N	ND	0.048	1.0		mg/L	5	11/4/2019 3:43:10 PM	R64204
EPA METHOD 7470: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/13/2019 11:49:25 A	48730
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **rde**	
Antimony	0.013	0.0081	0.050	J	mg/L	1	11/25/2019 1:00:56 PM	48560
Arsenic	ND	0.015	0.020		mg/L	1	11/13/2019 8:16:09 PM	48560
Barium	ND	0.0012	0.020		mg/L	1	11/13/2019 8:16:09 PM	48560
Beryllium	ND	0.00025	0.0030		mg/L	1	11/13/2019 8:16:09 PM	48560
Cadmium	ND	0.00055	0.0020		mg/L	1	11/13/2019 8:16:09 PM	48560
Chromium	0.00093	0.00086	0.0060	J	mg/L	1	11/13/2019 8:16:09 PM	48560
Cobalt	ND	0.0012	0.0060		mg/L	1	11/25/2019 1:00:56 PM	48560
Iron	0.026	0.0093	0.020		mg/L	1	11/14/2019 5:28:46 PM	48560
Lead	ND	0.0035	0.0050		mg/L	1	11/13/2019 8:16:09 PM	48560
Manganese	0.00072	0.00041	0.0020	J	mg/L	1	11/25/2019 1:00:56 PM	48560
Nickel	ND	0.0028	0.010		mg/L	1	11/13/2019 8:16:09 PM	48560
Selenium	ND	0.035	0.050		mg/L	1	11/13/2019 8:16:09 PM	48560
Silver	ND	0.00055	0.0050		mg/L	1	11/13/2019 8:16:09 PM	48560
Vanadium	ND	0.00086	0.050		mg/L	1	11/13/2019 8:16:09 PM	48560
Zinc	ND	0.011	0.020		mg/L	1	11/13/2019 8:16:09 PM	48560
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Acenaphthylene	ND	2.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Aniline	ND	3.6	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Anthracene	ND	2.7	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Azobenzene	ND	3.3	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Benz(a)anthracene	ND	3.6	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Benzo(a)pyrene	ND	3.5	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	11/8/2019 11:56:36 AM	48585

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102919
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 3:25:00 PM
Lab ID: 1910F75-012
Matrix: AQUEOUS
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzoic acid	ND	11	20		µg/L	1	11/8/2019 11:56:36 AM	48585
Benzyl alcohol	ND	2.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	11/8/2019 11:56:36 AM	48585
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Carbazole	ND	2.9	10		µg/L	1	11/8/2019 11:56:36 AM	48585
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
4-Chloroaniline	ND	2.3	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2-Chloronaphthalene	ND	3.1	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2-Chlorophenol	ND	2.7	10		µg/L	1	11/8/2019 11:56:36 AM	48585
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Chrysene	ND	2.8	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Dibenzofuran	ND	3.2	10		µg/L	1	11/8/2019 11:56:36 AM	48585
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	11/8/2019 11:56:36 AM	48585
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	11/8/2019 11:56:36 AM	48585
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
3,3´-Dichlorobenzidine	ND	2.8	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Diethyl phthalate	ND	2.9	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Dimethyl phthalate	ND	3.2	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	11/8/2019 11:56:36 AM	48585
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	11/8/2019 11:56:36 AM	48585
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	11/8/2019 11:56:36 AM	48585
2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Fluoranthene	ND	2.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Fluorene	ND	2.9	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Hexachlorobenzene	ND	3.1	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Hexachlorobutadiene	ND	4.7	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Hexachloroethane	ND	4.8	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Isophorone	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102919
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 3:25:00 PM
Lab ID: 1910F75-012
Matrix: AQUEOUS
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
1-Methylnaphthalene	ND	3.1	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2-Methylnaphthalene	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2-Methylphenol	ND	2.9	10		µg/L	1	11/8/2019 11:56:36 AM	48585
3+4-Methylphenol	ND	3.6	10		µg/L	1	11/8/2019 11:56:36 AM	48585
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	11/8/2019 11:56:36 AM	48585
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Naphthalene	ND	4.1	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2-Nitroaniline	ND	3.2	10		µg/L	1	11/8/2019 11:56:36 AM	48585
3-Nitroaniline	ND	3.2	10		µg/L	1	11/8/2019 11:56:36 AM	48585
4-Nitroaniline	ND	2.7	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Nitrobenzene	ND	2.8	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2-Nitrophenol	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
4-Nitrophenol	ND	7.6	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Pentachlorophenol	ND	2.7	20		µg/L	1	11/8/2019 11:56:36 AM	48585
Phenanthrene	ND	2.8	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Phenol	ND	8.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Pyrene	ND	2.5	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Pyridine	ND	9.6	10		µg/L	1	11/8/2019 11:56:36 AM	48585
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	11/8/2019 11:56:36 AM	48585
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	11/8/2019 11:56:36 AM	48585
Surr: 2-Fluorophenol	60.3	0	15-101		%Rec	1	11/8/2019 11:56:36 AM	48585
Surr: Phenol-d5	46.4	0	15-84.6		%Rec	1	11/8/2019 11:56:36 AM	48585
Surr: 2,4,6-Tribromophenol	82.0	0	27.8-112		%Rec	1	11/8/2019 11:56:36 AM	48585
Surr: Nitrobenzene-d5	85.7	0	33-113		%Rec	1	11/8/2019 11:56:36 AM	48585
Surr: 2-Fluorobiphenyl	83.2	0	26.6-107		%Rec	1	11/8/2019 11:56:36 AM	48585
Surr: 4-Terphenyl-d14	71.3	0	18.7-148		%Rec	1	11/8/2019 11:56:36 AM	48585
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.17	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Toluene	ND	0.35	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Naphthalene	ND	0.28	2.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/4/2019 2:03:13 PM	R64230

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102919
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 3:25:00 PM
Lab ID: 1910F75-012
Matrix: AQUEOUS
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Acetone	ND	1.2	10		µg/L	1	11/4/2019 2:03:13 PM	R64230
Bromobenzene	ND	0.24	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Bromoform	ND	0.29	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Bromomethane	ND	0.27	3.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
2-Butanone	ND	2.1	10		µg/L	1	11/4/2019 2:03:13 PM	R64230
Carbon disulfide	ND	0.45	10		µg/L	1	11/4/2019 2:03:13 PM	R64230
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Chloroethane	ND	0.18	2.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Chloroform	ND	0.12	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Chloromethane	ND	0.32	3.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Dibromomethane	ND	0.21	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
2-Hexanone	ND	1.5	10		µg/L	1	11/4/2019 2:03:13 PM	R64230
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/4/2019 2:03:13 PM	R64230
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB102919
Project: Sanitary Sewer Lagoon
Collection Date: 10/29/2019 3:25:00 PM
Lab ID: 1910F75-012
Matrix: AQUEOUS
Received Date: 10/31/2019 8:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Styrene	ND	0.19	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/4/2019 2:03:13 PM	R64230
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/4/2019 2:03:13 PM	R64230
Surr: 1,2-Dichloroethane-d4	95.2	0	70-130		%Rec	1	11/4/2019 2:03:13 PM	R64230
Surr: 4-Bromofluorobenzene	90.9	0	70-130		%Rec	1	11/4/2019 2:03:13 PM	R64230
Surr: Dibromofluoromethane	104	0	70-130		%Rec	1	11/4/2019 2:03:13 PM	R64230
Surr: Toluene-d8	101	0	70-130		%Rec	1	11/4/2019 2:03:13 PM	R64230
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.019	0.050		mg/L	1	11/4/2019 2:03:13 PM	G64230
Surr: BFB	93.1	0	70-130		%Rec	1	11/4/2019 2:03:13 PM	G64230

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

Qualifiers:

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 12, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1156475

Samples Received: 11/02/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Cp: Cover Page 1
Tc: Table of Contents 2
Ss: Sample Summary 3
Cn: Case Narrative 5
Sr: Sample Results 6
1910F75-001B SL-2 (2-2.5') L1156475-01 6
1910F75-002B SL-2 (2-2.5') L1156475-02 7
1910F75-003B SL-2 (2.5-4') L1156475-03 8
1910F75-004B SL-2 (6-8') L1156475-04 9
1910F75-005B SL2 (14-16') L1156475-05 10
1910F75-006B SL-3 (0-0.5') L1156475-06 11
1910F75-007B SL-3 (2-2.5') L1156475-07 12
1910F75-008B SL-3 (6-8') L1156475-08 13
1910F75-009B SL-3 (14-16') L1156475-09 14
1910F75-010B DUP01 L1156475-10 15
1910F75-012F EB102919 L1156475-11 16
1910F75-012G EB102919 L1156475-12 17
Qc: Quality Control Summary 18
Wet Chemistry by Method 4500CN E-2011 18
Wet Chemistry by Method 7199 19
Wet Chemistry by Method 9012B 22
Gl: Glossary of Terms 23
Al: Accreditations & Locations 24
Sc: Sample Chain of Custody 25

1910F75-001B SL-2 (2-2.5') L1156475-01 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 10:35	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 15:29	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:30	JER	Mt. Juliet, TN

1910F75-002B SL-2 (2-2.5') L1156475-02 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 10:50	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 15:34	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:31	JER	Mt. Juliet, TN

1910F75-003B SL-2 (2.5-4') L1156475-03 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 11:17	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 15:39	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:32	JER	Mt. Juliet, TN

1910F75-004B SL-2 (6-8') L1156475-04 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 11:30	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1376796	1	11/11/19 11:49	11/11/19 18:14	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:35	JER	Mt. Juliet, TN

1910F75-005B SL2 (14-16') L1156475-05 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 11:40	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1376796	1	11/11/19 11:49	11/11/19 18:26	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:36	JER	Mt. Juliet, TN

1910F75-006B SL-3 (0-0.5') L1156475-06 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 13:40	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1376796	1	11/11/19 11:49	11/11/19 18:31	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:37	JER	Mt. Juliet, TN

1910F75-007B SL-3 (2-2.5') L1156475-07 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 13:55	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1376796	1	11/11/19 11:49	11/11/19 18:37	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:38	JER	Mt. Juliet, TN

1910F75-008B SL-3 (6-8') L1156475-08 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 14:05	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1376796	1	11/11/19 11:49	11/11/19 18:42	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:39	JER	Mt. Juliet, TN

1910F75-009B SL-3 (14-16') L1156475-09 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 14:15	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1376796	1	11/11/19 11:49	11/11/19 18:47	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:42	JER	Mt. Juliet, TN

1910F75-010B DUP01 L1156475-10 Solid

Collected by	Collected date/time	Received date/time
	10/29/19 00:00	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1376796	1	11/11/19 11:49	11/11/19 18:52	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:43	JER	Mt. Juliet, TN

1910F75-012F EB102919 L1156475-11 GW

Collected by	Collected date/time	Received date/time
	10/29/19 15:25	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374139	1	11/06/19 22:27	11/06/19 22:27	GB	Mt. Juliet, TN

1910F75-012G EB102919 L1156475-12 GW

Collected by	Collected date/time	Received date/time
	10/29/19 15:25	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1378731	1	11/11/19 15:23	11/11/19 19:29	JER	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 15:29	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.327		0.0390	0.250	1	11/07/2019 17:30	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 15:34	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:31	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 15:39	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:32	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 18:14	WG1376796

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:35	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 18:26	WG1376796

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:36	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 18:31	WG1376796

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.170	J	0.0390	0.250	1	11/07/2019 17:37	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 18:37	WG1376796

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:38	WG1376270

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 18:42	WG1376796

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	U		0.0390	0.250	1	11/07/2019 17:39	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 18:47	WG1376796

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:42	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 18:52	WG1376796

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.291		0.0390	0.250	1	11/07/2019 17:43	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/06/2019 22:27	WG1374139

Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Cyanide	U		0.00180	0.00500	1	11/11/2019 19:29	WG1378731

Method Blank (MB)

(MB) R3470776-1 11/11/19 19:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

L1156459-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156459-01 11/11/19 19:22 • (DUP) R3470776-6 11/11/19 19:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3470776-2 11/11/19 19:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	0.100	0.0923	92.3	85.0-115	

L1156427-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156427-04 11/11/19 19:18 • (MS) R3470776-4 11/11/19 19:19 • (MSD) R3470776-5 11/11/19 19:20

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 %
Cyanide	0.100	ND	0.0910	0.0779	91.0	77.9	1	75.0-125			15.5	20

L1156467-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156467-11 11/11/19 19:24 • (MS) R3470776-7 11/11/19 19:25 • (MSD) R3470776-8 11/11/19 19:28

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 %
Cyanide	0.100	U	0.0971	0.0959	97.1	95.9	1	75.0-125			1.24	20

Method Blank (MB)

(MB) R3469600-1 11/06/19 19:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1156459-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156459-01 11/06/19 21:56 • (DUP) R3469600-3 11/06/19 22:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	0.000	1	0.000		20

L1157549-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157549-01 11/07/19 00:55 • (DUP) R3469600-5 11/07/19 01:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.00487	0.00485	1	0.340		20

Laboratory Control Sample (LCS)

(LCS) R3469600-2 11/06/19 19:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	0.00200	0.00189	94.5	90.0-110	

L1156467-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1156467-10 11/06/19 22:13 • (MS) R3469600-4 11/06/19 22:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	0.0500	U	0.0498	99.7	1	90.0-110	

L1157549-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157549-02 11/07/19 01:10 • (MS) R3469600-6 11/07/19 01:17 • (MSD) R3469600-7 11/07/19 01:25

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 %
Hexavalent Chromium	0.0500	0.00392	0.0532	0.0533	98.6	98.7	1	90.0-110			0.104	20

Method Blank (MB)

(MB) R3470755-1 11/11/19 14:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L1156467-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1156467-05 11/11/19 14:24 • (DUP) R3470755-3 11/11/19 14:32

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

L1157158-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1157158-07 11/11/19 16:52 • (DUP) R3470755-8 11/11/19 16:57

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3470755-2 11/11/19 14:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.97	99.7	80.0-120	

L1156467-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156467-06 11/11/19 14:37 • (MS) R3470755-4 11/11/19 14:42 • (MSD) R3470755-5 11/11/19 14:47

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 %
Hexavalent Chromium	20.0	U	18.2	18.4	91.0	91.9	1	75.0-125			1.05	20

L1156467-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1156467-06 11/11/19 14:37 • (MS) R3470755-6 11/11/19 14:53

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	753	U	732	97.3	50	75.0-125	

Method Blank (MB)

(MB) R3470785-1 11/11/19 17:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L1156475-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1156475-04 11/11/19 18:14 • (DUP) R3470785-3 11/11/19 18:21

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

L1158223-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1158223-05 11/11/19 20:41 • (DUP) R3470785-8 11/11/19 20:47

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.376	0.403	1	6.88	J	20

Laboratory Control Sample (LCS)

(LCS) R3470785-2 11/11/19 17:43

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1158223-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1158223-04 11/11/19 20:15 • (MS) R3470785-4 11/11/19 20:21 • (MSD) R3470785-5 11/11/19 20:26

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 %
Hexavalent Chromium	20.0	U	1.94	1.90	9.70	9.51	1	75.0-125	J6	J6	2.01	20

L1158223-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1158223-04 11/11/19 20:15 • (MS) R3470785-6 11/11/19 20:31

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	662	U	292	44.1	50	75.0-125	J6

Method Blank (MB)

(MB) R3469670-1 11/07/19 17:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1155811-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1155811-02 11/07/19 17:23 • (DUP) R3469670-3 11/07/19 17:24

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.0785	1	0.000		20

L1157218-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157218-01 11/07/19 17:50 • (DUP) R3469670-8 11/07/19 17:51

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3469670-2 11/07/19 17:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.58	103	50.0-150	

L1156475-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156475-03 11/07/19 17:32 • (MS) R3469670-4 11/07/19 17:33 • (MSD) R3469670-5 11/07/19 17:34

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 %
Cyanide	1.67	U	1.42	1.47	85.0	88.1	1	75.0-125			3.52	20

L1156476-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156476-01 11/07/19 17:44 • (MS) R3469670-6 11/07/19 17:45 • (MSD) R3469670-7 11/07/19 17:47

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 %
Cyanide	1.67	ND	1.47	0.0905	88.0	5.43	1	75.0-125		J3 J6	177	20

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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.
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.

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

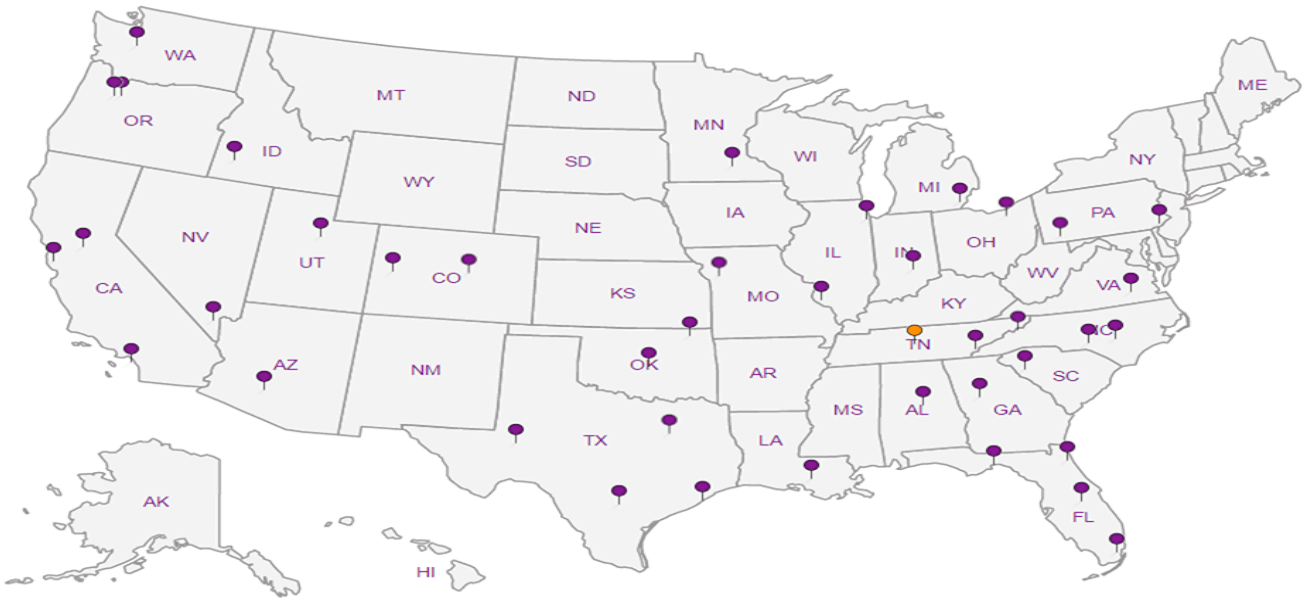
Third Party Federal Accreditations

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 RECORD

PAGE: 1 OF: 1

1097

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

SUB CONTRATOR: **ESC PACE**	COMPANY: **ESC PACE**	PHONE: **(800) 767-5859**	FAX: **(615) 758-5859**
ADDRESS: **12065 Lebanon Rd**		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: **Mt. Juliet, TN 37122**			

L1156473

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	1910F75-001B	SL-2 (2-2.5')	4OZGU	Soil	10/29/2019 10:35:00 AM	1	Lv. 4 Total CN and Cr6	J and MDL -01
2	1910F75-002B	SL-2 (2-2.5')	4OZGU	Soil	10/29/2019 10:50:00 AM	1	Lv. 4 Total CN and Cr6	-02
3	1910F75-003B	SL-2 (2.5-4')	4OZGU	Soil	10/29/2019 11:05:00 AM	1	Lv. 4 Total CN and Cr6	-03
4	1910F75-004B	SL-2 (6-8')	4OZGU	Soil	10/29/2019 11:17:00 AM	1	Lv. 4 Total CN and Cr6	-04
5	1910F75-005B	SL2 (14-16')	4OZGU	Soil	10/29/2019 11:30:00 AM	1	Lv. 4 Total CN and Cr6	-05
6	1910F75-006B	SL-3 (0-0.5')	4OZGU	Soil	10/29/2019 1:40:00 PM	1	Lv. 4 Total CN and Cr6	LB 10/31/19 -06
7	1910F75-007B	SL-3 (2-2.5')	4OZGU	Soil	10/29/2019 1:55:00 PM	1	Lv. 4 Total CN and Cr6	-07
8	1910F75-008B	SL-3 (6-8')	4OZGU	Soil	10/29/2019 2:05:00 PM	1	Lv. 4 Total CN and Cr6	-08
9	1910F75-009B	SL-3 (14-16')	4OZGU	Soil	10/29/2019 2:15:00 PM	1	Lv. 4 Total CN and Cr6	-09
10	1910F75-010B	DUP01	4OZGU	Soil	10/29/2019	1	Lv. 4 Total CN and Cr6	-10
11	1910F75-012F	EB102919	120mL	Aqueous	10/29/2019 3:25:00 PM	1	Lv.4 Cr6 J and MDL	-11
12	1910F75-012G	EB102919	500AMBHDP E-NAOH	Aqueous	10/29/2019 3:25:00 PM	1	Lv.4 Total CN for GW J and MDL 7/2	-12

SPECIAL INSTRUCTIONS / COMMENTS:

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

4510 1664 4599

Relinquished By:	Date: 10/31/2019	Time: 1:19 PM	Received By:	Date: 11-2-19	Time: 0915
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

REPORT TRANSMITTAL DESIRED:

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

FOR LAB USE ONLY

CuSI

Temp of samples 25-1-3-24 4/6 °C Attempt to Cool ? _____

RAD [illegible] <0.5 mR/hr

Comments: _____

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	L1156475	
Cooler Received/Opened On: 11/02/19 Temperature:	2.4	
Received By: Paul Minnich		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48614**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200565** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: **LCS-48614**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200566** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	110	90	110			
Chloride	15	1.5	15.00	0	99.5	90	110			
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	96.5	90	110			
Nitrogen, Nitrate (As N)	7.8	0.30	7.500	0	104	90	110			
Sulfate	30	1.5	30.00	0	98.8	90	110			

Sample ID: **1910F75-006AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-3 (0-0.5')**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200594** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.3	1.5	1.500	3.700	38.0	15	137			
Chloride	30	7.5	15.00	14.64	103	54	141			
Nitrogen, Nitrite (As N)	2.8	1.5	3.000	0	91.7	69.3	117			
Nitrogen, Nitrate (As N)	20	1.5	7.500	12.61	103	54.4	142			
Sulfate	180	7.5	30.00	143.9	131	16.1	153			

Sample ID: **1910F75-006AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-3 (0-0.5')**	Batch ID: **48614**	RunNo: **64301**
Prep Date: **11/6/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200595** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	4.1	1.5	1.500	3.700	23.5	15	138	5.20	20	
Chloride	29	7.5	15.00	14.64	95.8	54.5	140	3.55	20	
Nitrogen, Nitrite (As N)	2.7	1.5	3.000	0	90.2	69.5	116	1.60	20	
Nitrogen, Nitrate (As N)	20	1.5	7.500	12.61	102	54.8	141	0.555	20	
Sulfate	160	7.5	30.00	143.9	69.4	16.6	153	10.6	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64204**	RunNo: **64204**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197555** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	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: **R64204**	RunNo: **64204**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197556** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.8	90	110			
Chloride	4.6	0.50	5.000	0	91.2	90	110			
Sulfate	9.2	0.50	10.00	0	92.4	90	110			
Nitrate+Nitrite as N	3.3	0.20	3.500	0	94.3	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48575**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **LCSW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198351**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.40	2.500	0	95.2	82	138			
Surr: DNOP	0.23		0.2500		91.6	81.5	152			

Sample ID: **MB-48575**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **PBW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198352**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.51		0.5000		102	81.5	152			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48543**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **48543**	RunNo: **64192**
Prep Date: **11/1/2019**	Analysis Date: **11/4/2019**	SeqNo: **2196675** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	70	130			

Sample ID: **LCS-48543**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **48543**	RunNo: **64227**
Prep Date: **11/1/2019**	Analysis Date: **11/4/2019**	SeqNo: **2197911** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	87.0	63.9	124			
Surr: DNOP	4.3		5.000		85.1	70	130			

Sample ID: **1910F75-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SL-2 (2-2.5')**	Batch ID: **48544**	RunNo: **64236**
Prep Date: **11/1/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198254** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	240	7.9	39.62	0	612	57	142			S
Surr: DNOP	4.8		3.962		122	70	130			

Sample ID: **1910F75-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **SL-2 (2-2.5')**	Batch ID: **48544**	RunNo: **64236**
Prep Date: **11/1/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198255** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	240	9.1	45.75	0	530	57	142	0.0278	20	S
Surr: DNOP	4.7		4.575		103	70	130	0	0	

Sample ID: **LCS-48544**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **48544**	RunNo: **64236**
Prep Date: **11/1/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198276** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	52	10	50.00	0	105	63.9	124			
Surr: DNOP	4.6		5.000		91.7	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48544**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **48544**	RunNo: **64236**
Prep Date: **11/1/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198277** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		99.5	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197088** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		102	77.4	118			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197089** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.0	80	120			
Surr: BFB	1100		1000		114	77.4	118			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196075** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **A64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196075** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.52		0.5000		105	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.0	70	130			
Surr: Toluene-d8	0.50		0.5000		99.9	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.0	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **A64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196076** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.025	1.000	0	98.0	68	135			
Toluene	0.90	0.050	1.000	0	89.7	70	130			
Chlorobenzene	0.90	0.050	1.000	0	89.7	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**							
Client ID: **LCSS**	Batch ID: **A64178**	RunNo: **64178**							
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196076**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.94	0.050	1.000	0	93.8	51.1	139			
Trichloroethene (TCE)	0.93	0.050	1.000	0	93.0	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		85.6	70	130			
Surr: Toluene-d8	0.46		0.5000		92.4	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.5000		89.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197919** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	19	1.0	20.00	0	95.9	70	130			
Chlorobenzene	20	1.0	20.00	0	100	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	85.1	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	86.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.7	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.3	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.2	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.6	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64267**
Prep Date: **11/1/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199508** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	0.00064	0.20								J
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	0.014	0.20								J
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	0.14	0.50								J
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.20	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	0.12	0.20								J
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64267**
Prep Date: **11/1/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199508** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	0.028	0.20								J
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	0.0044	0.20								J
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.1		3.330		63.6	26.7	85.9			
Surr: Phenol-d5	2.2		3.330		67.0	18.5	101			
Surr: 2,4,6-Tribromophenol	1.6		3.330		48.6	35.8	85.6			
Surr: Nitrobenzene-d5	1.1		1.670		63.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	0.90		1.670		54.0	34.7	85.2			
Surr: 4-Terphenyl-d14	0.98		1.670		58.6	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64325**
Prep Date: **11/1/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201376** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.22	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48536**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48536**	RunNo: **64325**
Prep Date: **11/1/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201376** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.2		3.330		65.2	26.7	85.9			
Surr: Phenol-d5	2.3		3.330		68.3	18.5	101			
Surr: 2,4,6-Tribromophenol	2.3		3.330		69.8	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		71.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		72.0	34.7	85.2			
Surr: 4-Terphenyl-d14	1.1		1.670		65.8	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48536**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48536**	RunNo: **64325**
Prep Date: **11/1/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201377** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.20	1.670	0	73.9	46	89.5			
4-Chloro-3-methylphenol	2.7	0.50	3.330	0	80.7	44.1	101			
2-Chlorophenol	2.2	0.20	3.330	0	67.4	47	91			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	64.7	41.4	85.8			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	63.5	37.4	82			
N-Nitrosodi-n-propylamine	1.2	0.20	1.670	0	71.2	47.8	92.9			
4-Nitrophenol	2.5	0.25	3.330	0	73.8	45	94.3			
Pentachlorophenol	2.3	0.40	3.330	0	69.9	31.7	76.9			
Phenol	2.4	0.20	3.330	0	70.9	49.4	92.5			
Pyrene	1.3	0.20	1.670	0	75.3	52.9	82.7			
1,2,4-Trichlorobenzene	1.2	0.20	1.670	0	73.4	43.6	98.1			
Surr: 2-Fluorophenol	2.1		3.330		62.1	26.7	85.9			
Surr: Phenol-d5	2.2		3.330		67.2	18.5	101			
Surr: 2,4,6-Tribromophenol	2.5		3.330		76.3	35.8	85.6			
Surr: Nitrobenzene-d5	1.3		1.670		75.3	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		74.2	34.7	85.2			
Surr: 4-Terphenyl-d14	1.2		1.670		72.6	37.4	91.3			

Sample ID: **mb-48568**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202666** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48568**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202666** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48568**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202666** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.1		3.330		62.1	26.7	85.9			
Surr: Phenol-d5	2.2		3.330		66.8	18.5	101			
Surr: 2,4,6-Tribromophenol	2.4		3.330		72.4	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		72.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		71.0	34.7	85.2			
Surr: 4-Terphenyl-d14	1.3		1.670		76.1	37.4	91.3			

Sample ID: **lcs-48568**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202667** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.670	0	64.2	46	89.5			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	69.0	44.1	101			
2-Chlorophenol	1.9	0.20	3.330	0	56.3	47	91			
1,4-Dichlorobenzene	0.86	0.20	1.670	0	51.8	41.4	85.8			
2,4-Dinitrotoluene	0.94	0.50	1.670	0	56.0	37.4	82			
N-Nitrosodi-n-propylamine	1.1	0.20	1.670	0	64.4	47.8	92.9			
4-Nitrophenol	2.2	0.25	3.330	0	66.2	45	94.3			
Pentachlorophenol	2.0	0.40	3.330	0	58.6	31.7	76.9			
Phenol	2.0	0.20	3.330	0	61.2	49.4	92.5			
Pyrene	1.1	0.20	1.670	0	68.8	52.9	82.7			
1,2,4-Trichlorobenzene	1.0	0.20	1.670	0	61.3	43.6	98.1			
Surr: 2-Fluorophenol	1.7		3.330		51.9	26.7	85.9			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48568**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202667** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Phenol-d5	2.0		3.330		61.3	18.5	101			
Surr: 2,4,6-Tribromophenol	2.3		3.330		70.5	35.8	85.6			
Surr: Nitrobenzene-d5	1.0		1.670		62.3	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.1		1.670		64.7	34.7	85.2			
Surr: 4-Terphenyl-d14	1.2		1.670		70.3	37.4	91.3			

Sample ID: **1910F75-007Ams**	SampType: **MS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **SL-3 (2-2.5')**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202669** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.634	0	67.8	28	113			
4-Chloro-3-methylphenol	2.5	0.49	3.258	0	78.0	28.8	121			
2-Chlorophenol	2.0	0.20	3.258	0	62.1	15.4	115			
1,4-Dichlorobenzene	0.84	0.20	1.634	0	51.5	15	107			
2,4-Dinitrotoluene	1.1	0.49	1.634	0	65.1	29.9	100			
N-Nitrosodi-n-propylamine	1.1	0.20	1.634	0	68.7	23.5	120			
4-Nitrophenol	2.7	0.24	3.258	0	82.5	42.3	125			
Pentachlorophenol	2.1	0.39	3.258	0	65.6	23.4	114			
Phenol	2.2	0.20	3.258	0	67.7	16.3	117			
Pyrene	1.1	0.20	1.634	0	70.3	34.2	122			
1,2,4-Trichlorobenzene	1.0	0.20	1.634	0	63.0	16.3	117			
Surr: 2-Fluorophenol	1.8		3.258		55.1	26.7	85.9			
Surr: Phenol-d5	2.1		3.258		65.0	18.5	101			
Surr: 2,4,6-Tribromophenol	2.7		3.258		83.8	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.634		70.8	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.3		1.634		77.7	34.7	85.2			
Surr: 4-Terphenyl-d14	1.3		1.634		79.1	37.4	91.3			

Sample ID: **1910F75-007Amsd**	SampType: **MSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **SL-3 (2-2.5')**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202670** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.94	0.19	1.578	0	59.7	28	113	16.2	33.1	
4-Chloro-3-methylphenol	2.2	0.47	3.146	0	71.2	28.8	121	12.7	39	
2-Chlorophenol	1.9	0.19	3.146	0	61.4	15.4	115	4.71	27.1	
1,4-Dichlorobenzene	0.80	0.19	1.578	0	50.9	15	107	4.78	26.3	
2,4-Dinitrotoluene	0.93	0.47	1.578	0	58.7	29.9	100	13.9	51.5	
N-Nitrosodi-n-propylamine	1.0	0.19	1.578	0	66.4	23.5	120	6.86	22.8	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **1910F75-007Amsd** SampType: **MSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **SL-3 (2-2.5')** Batch ID: **48568** RunNo: **64362**
Prep Date: **11/4/2019** Analysis Date: **11/9/2019** SeqNo: **2202670** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Nitrophenol	2.3	0.24	3.146	0	73.6	42.3	125	14.9	52.9	
Pentachlorophenol	1.8	0.38	3.146	0	57.0	23.4	114	17.6	52.1	
Phenol	2.0	0.19	3.146	0	64.1	16.3	117	8.91	28.8	
Pyrene	1.0	0.19	1.578	0	64.0	34.2	122	12.9	37.1	
1,2,4-Trichlorobenzene	0.97	0.19	1.578	0	61.7	16.3	117	5.60	28.4	
Surr: 2-Fluorophenol	1.8		3.146		56.9	26.7	85.9	0	0	
Surr: Phenol-d5	2.0		3.146		65.1	18.5	101	0	0	
Surr: 2,4,6-Tribromophenol	2.3		3.146		73.5	35.8	85.6	0	0	
Surr: Nitrobenzene-d5	1.0		1.578		66.3	40.8	95.2	0	0	
Surr: 2-Fluorobiphenyl	1.1		1.578		69.9	34.7	85.2	0	0	
Surr: 4-Terphenyl-d14	1.2		1.578		74.4	37.4	91.3	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48585**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202486** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48585**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202486** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	110		200.0		56.7	15	101			
Surr: Phenol-d5	87		200.0		43.6	15	84.6			
Surr: 2,4,6-Tribromophenol	170		200.0		84.7	27.8	112			
Surr: Nitrobenzene-d5	84		100.0		84.4	33	113			
Surr: 2-Fluorobiphenyl	81		100.0		80.6	26.6	107			
Surr: 4-Terphenyl-d14	68		100.0		68.0	18.7	148			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48585**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202487** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	71	10	100.0	0	71.3	32.2	94			
4-Chloro-3-methylphenol	150	10	200.0	0	73.1	37.7	101			
2-Chlorophenol	140	10	200.0	0	68.8	32.6	90.1			
1,4-Dichlorobenzene	61	10	100.0	0	61.3	30	87.2			
2,4-Dinitrotoluene	57	10	100.0	0	57.5	35.9	85.8			
N-Nitrosodi-n-propylamine	71	10	100.0	0	71.3	37.1	108			
4-Nitrophenol	76	10	200.0	0	38.1	22.4	86.6			
Pentachlorophenol	130	20	200.0	0	64.5	31.6	91			
Phenol	86	10	200.0	0	42.9	21.7	84.9			
Pyrene	74	10	100.0	0	73.9	46.3	103			
1,2,4-Trichlorobenzene	65	10	100.0	0	65.3	30.2	88.3			
Surr: 2-Fluorophenol	100		200.0		52.4	15	101			
Surr: Phenol-d5	83		200.0		41.7	15	84.6			
Surr: 2,4,6-Tribromophenol	150		200.0		73.8	27.8	112			
Surr: Nitrobenzene-d5	72		100.0		72.2	33	113			
Surr: 2-Fluorobiphenyl	69		100.0		69.2	26.6	107			
Surr: 4-Terphenyl-d14	63		100.0		62.7	18.7	148			

Sample ID: **lcsd-48585**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202488** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	73	10	100.0	0	72.6	32.2	94	1.81	32.9	
4-Chloro-3-methylphenol	140	10	200.0	0	68.9	37.7	101	5.97	29.9	
2-Chlorophenol	130	10	200.0	0	66.4	32.6	90.1	3.48	28.5	
1,4-Dichlorobenzene	58	10	100.0	0	57.7	15	87.2	5.95	44.9	
2,4-Dinitrotoluene	58	10	100.0	0	58.2	35.9	85.8	1.31	28.5	
N-Nitrosodi-n-propylamine	69	10	100.0	0	69.3	37.1	108	2.87	29.9	
4-Nitrophenol	82	10	200.0	0	41.1	15	86.6	7.45	68	
Pentachlorophenol	130	20	200.0	0	63.8	31.6	91	1.03	39.5	
Phenol	81	10	200.0	0	40.4	15	84.9	6.08	44.2	
Pyrene	74	10	100.0	0	74.2	46.3	103	0.405	23.8	
1,2,4-Trichlorobenzene	64	10	100.0	0	63.6	15.7	88.3	2.67	38	
Surr: 2-Fluorophenol	98		200.0		49.1	15	101	0	0	
Surr: Phenol-d5	76		200.0		38.1	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	140		200.0		69.8	27.8	112	0	0	
Surr: Nitrobenzene-d5	67		100.0		66.9	33	113	0	0	
Surr: 2-Fluorobiphenyl	68		100.0		68.2	26.6	107	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcsd-48585**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202488** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	62		100.0		62.3	18.7	148	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48648**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **48648**	RunNo: **64322**
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201157** Units: **mg/Kg**

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

Sample ID: **LCSLL-48648**	SampType: **LCSLL**	TestCode: **EPA Method 7471: Mercury**
Client ID: **BatchQC**	Batch ID: **48648**	RunNo: **64322**
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201158** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.033	0.006660	0	79.0	70	130			J

Sample ID: **LCS-48648**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **48648**	RunNo: **64322**
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201159** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	97.6	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48730**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206939** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-48730**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206940** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0044	0.00020	0.005000	0	87.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48626**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48626**	RunNo: **64473**
Prep Date: **11/6/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207237** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	0.034	0.10								J
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	1.9	2.5								J
Lead	ND	0.25								
Manganese	0.029	0.10								J
Nickel	0.19	0.50								J
Selenium	ND	2.5								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	0.46	2.5								J

Sample ID: **LCS-48626**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48626**	RunNo: **64473**
Prep Date: **11/6/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207241** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	24	2.5	25.00	0	94.6	80	120			
Barium	23	0.10	25.00	0	93.9	80	120			
Beryllium	24	0.15	25.00	0	94.7	80	120			
Cadmium	24	0.10	25.00	0	95.1	80	120			
Chromium	23	0.30	25.00	0	93.5	80	120			
Cobalt	24	0.30	25.00	0	94.2	80	120			
Iron	26	2.5	25.00	0	102	80	120			
Lead	24	0.25	25.00	0	96.4	80	120			
Manganese	24	0.10	25.00	0	94.2	80	120			
Nickel	23	0.50	25.00	0	93.4	80	120			
Selenium	20	2.5	25.00	0	81.3	80	120			
Silver	4.8	0.25	5.000	0	95.0	80	120			
Vanadium	24	2.5	25.00	0	94.7	80	120			
Zinc	24	2.5	25.00	0	94.5	80	120			

Sample ID: **MB-48558**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48558**	RunNo: **64473**
Prep Date: **11/4/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207242** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48558**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48558**	RunNo: **64473**
Prep Date: **11/4/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207242** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Barium	0.035	0.10								J
Beryllium	ND	0.15								
Cadmium	0.045	0.10								J
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	1.9	2.5								J
Manganese	0.033	0.10								J
Nickel	ND	0.50								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID: **LCS-48558**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48558**	RunNo: **64473**
Prep Date: **11/4/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207244** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	24	2.5	25.00	0	94.3	80	120			
Barium	24	0.10	25.00	0	94.8	80	120			
Beryllium	24	0.15	25.00	0	97.6	80	120			
Cadmium	24	0.10	25.00	0	96.5	80	120			
Chromium	24	0.30	25.00	0	94.1	80	120			
Cobalt	24	0.30	25.00	0	94.5	80	120			
Iron	26	2.5	25.00	0	105	80	120			
Manganese	24	0.10	25.00	0	97.1	80	120			
Nickel	24	0.50	25.00	0	94.7	80	120			
Silver	4.8	0.25	5.000	0	96.7	80	120			
Vanadium	25	2.5	25.00	0	98.1	80	120			
Zinc	24	2.5	25.00	0	95.8	80	120			

Sample ID: **MB-48558**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48558**	RunNo: **64594**
Prep Date: **11/4/2019**	Analysis Date: **11/18/2019**	SeqNo: **2212248** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	ND	0.30								
Lead	ND	0.25								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48558** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **48558** RunNo: **64594**
Prep Date: **11/4/2019** Analysis Date: **11/18/2019** SeqNo: **2212250** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cobalt	24	0.30	25.00	0	94.4	80	120			
Lead	25	0.25	25.00	0	100	80	120			

Sample ID: **MB-48558** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **48558** RunNo: **64607**
Prep Date: **11/4/2019** Analysis Date: **11/19/2019** SeqNo: **2212885** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.10								
Selenium	ND	2.5								

Sample ID: **LCS-48558** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **48558** RunNo: **64607**
Prep Date: **11/4/2019** Analysis Date: **11/19/2019** SeqNo: **2212887** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	24	0.10	25.00	0	96.8	80	120			
Selenium	22	2.5	25.00	0	89.3	80	120			

Sample ID: **MB-48558** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **48558** RunNo: **64607**
Prep Date: **11/4/2019** Analysis Date: **11/19/2019** SeqNo: **2213032** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								

Sample ID: **LCS-48558** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **48558** RunNo: **64607**
Prep Date: **11/4/2019** Analysis Date: **11/19/2019** SeqNo: **2213034** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	101	80	120			

Sample ID: **1910F75-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-2 (0-0.5')** Batch ID: **48558** RunNo: **64665**
Prep Date: **11/4/2019** Analysis Date: **11/20/2019** SeqNo: **2215407** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	5.0	24.89	0	0	75	125			S
Barium	440	0.20	24.89	497.7	-212	75	125			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **1910F75-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-2 (0-0.5')** Batch ID: **48558** RunNo: **64665**

Prep Date: **11/4/2019** Analysis Date: **11/20/2019** SeqNo: **2215407** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	24	0.30	24.89	1.048	93.2	75	125			
Cadmium	22	0.20	24.89	0	89.1	75	125			
Chromium	35	0.60	24.89	9.836	102	75	125			
Cobalt	27	0.60	24.89	3.938	91.3	75	125			
Manganese	160	0.20	24.89	138.0	75.4	75	125			
Nickel	32	1.0	24.89	9.009	93.9	75	125			
Silver	3.2	0.50	4.978	0	63.7	75	125			S
Vanadium	45	5.0	24.89	18.43	106	75	125			
Zinc	91	5.0	24.89	74.51	66.1	75	125			S

Sample ID: **1910F75-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-2 (0-0.5')** Batch ID: **48558** RunNo: **64665**

Prep Date: **11/4/2019** Analysis Date: **11/20/2019** SeqNo: **2215408** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	5.2	25.93	0	0	75	125	0	20	S
Barium	480	0.21	25.93	497.7	-70.9	75	125	7.45	20	S
Beryllium	23	0.31	25.93	1.048	84.4	75	125	5.56	20	
Cadmium	21	0.21	25.93	0	82.4	75	125	3.82	20	
Chromium	33	0.62	25.93	9.836	90.2	75	125	5.61	20	
Cobalt	25	0.62	25.93	3.938	82.9	75	125	4.72	20	
Manganese	150	0.21	25.93	138.0	65.0	75	125	1.23	20	S
Nickel	31	1.0	25.93	9.009	83.3	75	125	5.66	20	
Silver	3.2	0.52	5.186	0	60.8	75	125	0.667	20	S
Vanadium	42	5.2	25.93	18.43	90.0	75	125	7.04	20	
Zinc	91	5.2	25.93	74.51	62.2	75	125	0.354	20	S

Sample ID: **1910F75-001APS** SampType: **PS** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-2 (0-0.5')** Batch ID: **48558** RunNo: **64665**

Prep Date: Analysis Date: **11/20/2019** SeqNo: **2215415** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	41	5.0	50.30	0	80.6	80	120			
Manganese	180	0.20	50.30	138.0	90.4	80	120			
Silver	7.7	0.50	10.06	0	76.2	80	120			S
Zinc	120	5.0	50.30	74.51	87.5	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **1910F75-001AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-2 (0-0.5')**	Batch ID: **48558**	RunNo: **64665**
Prep Date: **11/4/2019**	Analysis Date: **11/20/2019**	SeqNo: **2215424** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	5.0	24.89	3.079	84.4	75	125			
Lead	29	0.50	24.89	8.777	79.5	75	125			
Selenium	19	5.0	24.89	0	77.5	75	125			

Sample ID: **1910F75-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-2 (0-0.5')**	Batch ID: **48558**	RunNo: **64665**
Prep Date: **11/4/2019**	Analysis Date: **11/20/2019**	SeqNo: **2215425** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	21	5.2	25.93	3.079	69.6	75	125	13.1	20	S
Lead	29	0.52	25.93	8.777	76.4	75	125	0.0118	20	
Selenium	18	5.2	25.93	0	67.6	75	125	9.53	20	S

Sample ID: **1910F75-001APS**	SampType: **PS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-2 (0-0.5')**	Batch ID: **48558**	RunNo: **64665**
Prep Date:	Analysis Date: **11/20/2019**	SeqNo: **2215430** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	47	5.0	50.30	3.079	86.9	80	120			
Selenium	41	5.0	50.30	0	80.9	80	120			

Sample ID: **MB-48626**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48626**	RunNo: **64788**
Prep Date: **11/6/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220515** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								

Sample ID: **LCS-48626**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48626**	RunNo: **64788**
Prep Date: **11/6/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220517** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	23	2.5	25.00	0	92.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64273**
Prep Date: **11/4/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199639** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	0.0012	0.050								J
Zinc	ND	0.020								

Sample ID: **LCS-48560**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48560**	RunNo: **64273**
Prep Date: **11/4/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199644** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	101	80	120			
Arsenic	0.49	0.020	0.5000	0	98.3	80	120			
Barium	0.48	0.020	0.5000	0	95.7	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.4	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Iron	0.51	0.020	0.5000	0	103	80	120			
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	97.7	80	120			
Silver	0.093	0.0050	0.1000	0	92.7	80	120			
Vanadium	0.50	0.050	0.5000	0	101	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64389**
Prep Date: **11/4/2019**	Analysis Date: **11/11/2019**	SeqNo: **2203945** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48560** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **48560** RunNo: **64389**
Prep Date: **11/4/2019** Analysis Date: **11/11/2019** SeqNo: **2203947** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.50	0.0050	0.5000	0	99.4	80	120			

Sample ID: **MB-48560** SampType: **MBLK** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW** Batch ID: **48560** RunNo: **64501**
Prep Date: **11/4/2019** Analysis Date: **11/13/2019** SeqNo: **2208278** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: **LCS-48560** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **48560** RunNo: **64501**
Prep Date: **11/4/2019** Analysis Date: **11/13/2019** SeqNo: **2208283** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.51	0.0050	0.5000	0	102	80	120			

Sample ID: **1910F75-012EMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **EB102919** Batch ID: **48560** RunNo: **64501**
Prep Date: **11/4/2019** Analysis Date: **11/13/2019** SeqNo: **2208309** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.54	0.020	0.5000	0	108	75	125			
Barium	0.50	0.020	0.5000	0	99.3	75	125			
Beryllium	0.51	0.0030	0.5000	0	101	75	125			
Cadmium	0.50	0.0020	0.5000	0	100	75	125			
Chromium	0.49	0.0060	0.5000	0.0009344	98.7	75	125			
Lead	0.50	0.0050	0.5000	0	101	75	125			
Nickel	0.49	0.010	0.5000	0	97.8	75	125			
Selenium	0.50	0.050	0.5000	0	99.4	75	125			
Silver	0.11	0.0050	0.1000	0	108	75	125			
Vanadium	0.50	0.050	0.5000	0	101	75	125			
Zinc	0.47	0.020	0.5000	0	93.2	75	125			

Sample ID: **1910F75-012EMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **EB102919** Batch ID: **48560** RunNo: **64501**
Prep Date: **11/4/2019** Analysis Date: **11/13/2019** SeqNo: **2208310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	103	75	125	4.21	20	
Barium	0.50	0.020	0.5000	0	99.0	75	125	0.291	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **1910F75-012EMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **EB102919** Batch ID: **48560** RunNo: **64501**

Prep Date: **11/4/2019** Analysis Date: **11/13/2019** SeqNo: **2208310** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.50	0.0030	0.5000	0	100	75	125	0.872	20	
Cadmium	0.50	0.0020	0.5000	0	99.5	75	125	0.545	20	
Chromium	0.49	0.0060	0.5000	0.0009344	98.7	75	125	0.0571	20	
Lead	0.50	0.0050	0.5000	0	100	75	125	0.469	20	
Nickel	0.48	0.010	0.5000	0	96.7	75	125	1.17	20	
Selenium	0.49	0.050	0.5000	0	97.7	75	125	1.69	20	
Silver	0.11	0.0050	0.1000	0	108	75	125	0.225	20	
Vanadium	0.50	0.050	0.5000	0	100	75	125	0.769	20	
Zinc	0.46	0.020	0.5000	0	92.5	75	125	0.713	20	

Sample ID: **1910F75-012EMS** SampType: **MS** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **EB102919** Batch ID: **48560** RunNo: **64540**

Prep Date: **11/4/2019** Analysis Date: **11/14/2019** SeqNo: **2209897** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.53	0.020	0.5000	0.02570	100	75	125			

Sample ID: **1910F75-012EMSD** SampType: **MSD** TestCode: **EPA 6010B: Total Recoverable Metals**

Client ID: **EB102919** Batch ID: **48560** RunNo: **64540**

Prep Date: **11/4/2019** Analysis Date: **11/14/2019** SeqNo: **2209898** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.52	0.020	0.5000	0.02570	99.0	75	125	1.03	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910F75**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	70	130			
Surr: BFB	9.5		10.00		95.5	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197979** 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	9.3		10.00		93.0	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1910F75** RcptNo: **1**

Received By: Juan Rojas **10/31/2019 8:50:00 AM**

Completed By: **Leah Baca** **10/31/2019 10:32:14 AM** Leah Baca

Reviewed By: ENM 10/1/19 ENH 11/1/19

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: 2 (<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: DM 11/1/19

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	1.3	Good	Yes			
2	0.0	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.4 - 0.1 = 1.3

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	0.1-0.1=0.0 HEAL No. 1910F75	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B - [redacted]	8270 - [redacted]	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/29/19	1035	Soil	SL-2 (0-0.5')	8 oz jar - 2	Neat	-001			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1050		SL-2 (2-2.5')	8OZJAR-2	NEAT	-002			X							X	X	X	X			
				4OZJAR-1	NEAT															X		
				VIAL-2	MEOH											X						
	1105		SL-2 (2.5'-4')	8OZJAR-2	NEAT	-003			X							X	X	X	X			
				4OZJAR-1	NEAT															X		
				VIAL-2	MEOH											X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/30/19	0700		carrier	10/31/19	8:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.4 - 0.1 = 1.3

0.1 - 0.1 = 0.0

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. 1910E75	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/29/19	1117	Soil	SL-2 (6-8')	8 oz jar - 1	Neat	-004			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1130		SL-2 (14-16')	8ozJAR-1	NEAT	-005			X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MeOH											X						
	1340		SL-3 (0-0.5')	8ozJAR-2	NEAT	-006			X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MeOH											X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
10/30/19	0700		carrier	10/31/19	8:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.4-0.1=1.3

0.1-0.1=0.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1910F75	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
			Analysis Request																			
10/29/19	1355	Soil	SL-3 (2-2.5')	8 oz jar - 2	Neat	-007			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1405		SL-3 (6-8')	8 oz JAR-2	NEAT	-008			X							X	X	X	X			
				4 oz JAR-1	NEAT															X		
				VIAL-2	MEOH											X						
	1415		SL-3 (14-16')	8 oz JAR-1	NEAT	-009			X							X	X	X	X			
				4 oz JAR-1	NEAT															X		
				VIAL-2	MEOH											X						

Date	Time	Relinquished by:	Received by:	Date	Time
10/30/19	0700		carrier	10/31/19	8:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard **X** Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.4 - 0.1 = 1.3

0.1 - 0.1 = 0.0

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. 1910F75	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B - [redacted]	8270 - [redacted]	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/29/19	—	Soil	DUP01	8 oz jar - 2	Neat	-010			X							X	X	X	X			
↓	—		↓	4 oz jar - 1	Neat	|														X		
	—	↓		Vial - 2	MeOH	|										X						
↓	—	MeOH	MeOH Blank	VIAL-1	MeOH	-011										X						

Date	Time	Relinquished by:	Received by:	Date	Time
10/30/19	0700	[signature]	[signature] courier	10/31/19	8:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.4 - 0.1 = 1.3

0.1 - 0.1 = 0.0

HEAL No. 1910F75

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total	Chromium VI	Anions	Cyanide			Air Bubbles (Y or N)
10/29/19	1525	Water	EB102919	40ml voa - 5	HCl	-012			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -1	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			

Date	Time	Relinquished by:	Received by:	Date	Time
10/30/19	0700		carrier	10/31/19	8:50
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

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

December 05, 2019

Brian Moore

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX

RE: Sanitary Sewer Lagoon OrderNo.: 1910G04

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 11 sample(s) on 10/31/2019 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: Marathon
Client Sample ID: SL-4 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:20:00 AM
Lab ID: 1910G04-001 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	270	9.7	49		mg/Kg	5	11/7/2019 3:56:02 PM	48574
Motor Oil Range Organics (MRO)	240	240	240		mg/Kg	5	11/7/2019 3:56:02 PM	48574
Surr: DNOP	98.0	0	70-130		%Rec	5	11/7/2019 3:56:02 PM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.1	3.5		mg/Kg	1	11/4/2019 8:19:42 PM	A64209
Surr: BFB	94.2	0	77.4-118		%Rec	1	11/4/2019 8:19:42 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	3.2	1.5	1.5		mg/Kg	5	11/7/2019 12:47:18 PM	48646
Chloride	94	7.5	7.5		mg/Kg	5	11/7/2019 12:47:18 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 12:47:18 PM	48646
Nitrogen, Nitrate (As N)	12	1.5	1.5		mg/Kg	5	11/7/2019 12:47:18 PM	48646
Sulfate	550	7.5	7.5		mg/Kg	5	11/7/2019 12:47:18 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.20	0.0018	0.033		mg/Kg	1	11/11/2019 6:08:27 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Arsenic	ND	2.9	5.0		mg/Kg	2	11/21/2019 8:12:25 PM	48604
Barium	330	0.046	0.20		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Beryllium	1.0	0.018	0.30		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Chromium	10	0.16	0.60		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Cobalt	4.6	0.21	0.60		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Iron	14000	73	250		mg/Kg	100	11/20/2019 8:07:28 PM	48604
Lead	7.2	0.49	0.50		mg/Kg	2	11/21/2019 8:12:25 PM	48604
Manganese	180	0.042	0.20		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Nickel	9.1	0.30	1.0		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Selenium	ND	2.4	4.8		mg/Kg	2	11/25/2019 6:45:06 PM	48977
Silver	ND	0.064	0.50		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Vanadium	16	0.13	5.0		mg/Kg	2	11/20/2019 8:05:51 PM	48604
Zinc	41	0.79	5.0		mg/Kg	2	11/20/2019 8:05:51 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Acenaphthylene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Aniline	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Anthracene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Azobenzene	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Benz(a)anthracene	ND	0.93	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:20:00 AM
Lab ID: 1910G04-001
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.86	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Benzo(b)fluoranthene	ND	0.85	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Benzo(g,h,i)perylene	ND	0.83	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Benzo(k)fluoranthene	ND	0.88	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Benzoic acid	ND	1.0	4.8	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Benzyl alcohol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Bis(2-chloroethoxy)methane	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Bis(2-chloroethyl)ether	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Bis(2-chloroisopropyl)ether	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Bis(2-ethylhexyl)phthalate	ND	1.4	4.8	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
4-Bromophenyl phenyl ether	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Butyl benzyl phthalate	ND	0.99	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Carbazole	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
4-Chloro-3-methylphenol	ND	1.5	4.8	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
4-Chloroaniline	ND	1.4	4.8	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2-Chloronaphthalene	ND	1.2	2.4	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2-Chlorophenol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
4-Chlorophenyl phenyl ether	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Chrysene	ND	0.85	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Di-n-butyl phthalate	ND	1.4	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Di-n-octyl phthalate	ND	0.99	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Dibenz(a,h)anthracene	ND	0.88	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Dibenzofuran	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
1,2-Dichlorobenzene	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
1,3-Dichlorobenzene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
1,4-Dichlorobenzene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
3,3´-Dichlorobenzidine	ND	0.86	2.4	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Diethyl phthalate	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Dimethyl phthalate	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2,4-Dichlorophenol	ND	1.1	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2,4-Dimethylphenol	ND	1.1	2.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.89	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2,4-Dinitrophenol	ND	0.70	4.8	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2,4-Dinitrotoluene	ND	1.1	4.8	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2,6-Dinitrotoluene	ND	1.3	4.8	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Fluoranthene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Fluorene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Hexachlorobenzene	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Hexachlorobutadiene	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:20:00 AM
Lab ID: 1910G04-001
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Hexachloroethane	ND	1.1	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.96	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Isophorone	ND	1.4	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
1-Methylnaphthalene	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2-Methylnaphthalene	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2-Methylphenol	ND	1.1	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
3+4-Methylphenol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
N-Nitrosodi-n-propylamine	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
N-Nitrosodiphenylamine	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Naphthalene	ND	1.5	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2-Nitroaniline	ND	1.4	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
3-Nitroaniline	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
4-Nitroaniline	ND	1.2	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Nitrobenzene	ND	1.3	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2-Nitrophenol	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
4-Nitrophenol	ND	1.3	2.4	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Pentachlorophenol	ND	1.0	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Phenanthrene	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Phenol	ND	1.2	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Pyrene	ND	0.91	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Pyridine	ND	1.2	3.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
1,2,4-Trichlorobenzene	ND	1.5	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2,4,5-Trichlorophenol	ND	1.3	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
2,4,6-Trichlorophenol	ND	1.0	1.9	D	mg/Kg	1	11/9/2019 12:46:15 PM	48568
Surr: 2-Fluorophenol	0		26.7-85.9	SD	%Rec	1	11/9/2019 12:46:15 PM	48568
Surr: Phenol-d5	0		18.5-101	SD	%Rec	1	11/9/2019 12:46:15 PM	48568
Surr: 2,4,6-Tribromophenol	0		35.8-85.6	SD	%Rec	1	11/9/2019 12:46:15 PM	48568
Surr: Nitrobenzene-d5	0		40.8-95.2	SD	%Rec	1	11/9/2019 12:46:15 PM	48568
Surr: 2-Fluorobiphenyl	0		34.7-85.2	SD	%Rec	1	11/9/2019 12:46:15 PM	48568
Surr: 4-Terphenyl-d14	0		37.4-91.3	SD	%Rec	1	11/9/2019 12:46:15 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0029	0.018		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Toluene	ND	0.0034	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Ethylbenzene	ND	0.0020	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0083	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0032	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0034	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0036	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:20:00 AM
Lab ID: 1910G04-001
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0032	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Naphthalene	ND	0.0070	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1-Methylnaphthalene	ND	0.020	0.14		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
2-Methylnaphthalene	ND	0.015	0.14		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Acetone	ND	0.029	0.53		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Bromobenzene	ND	0.0034	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Bromodichloromethane	ND	0.0032	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Bromoform	ND	0.0032	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Bromomethane	ND	0.0085	0.11		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
2-Butanone	0.065	0.041	0.35	J	mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Carbon disulfide	ND	0.012	0.35		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Carbon tetrachloride	ND	0.0033	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Chlorobenzene	ND	0.0045	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Chloroethane	ND	0.0052	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Chloroform	ND	0.0028	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Chloromethane	ND	0.0034	0.11		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
2-Chlorotoluene	ND	0.0031	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
4-Chlorotoluene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
cis-1,2-DCE	ND	0.0048	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
cis-1,3-Dichloropropene	ND	0.0030	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0036	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Dibromochloromethane	ND	0.0025	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Dibromomethane	ND	0.0038	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2-Dichlorobenzene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,3-Dichlorobenzene	ND	0.0031	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,4-Dichlorobenzene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Dichlorodifluoromethane	ND	0.0082	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,1-Dichloroethane	ND	0.0022	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,1-Dichloroethene	ND	0.014	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2-Dichloropropane	ND	0.0026	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,3-Dichloropropane	ND	0.0038	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
2,2-Dichloropropane	ND	0.011	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,1-Dichloropropene	ND	0.0032	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Hexachlorobutadiene	ND	0.0036	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
2-Hexanone	ND	0.0058	0.35		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Isopropylbenzene	ND	0.0025	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
4-Isopropyltoluene	ND	0.0029	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
4-Methyl-2-pentanone	ND	0.0066	0.35		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Methylene chloride	ND	0.0062	0.11		mg/Kg	1	11/2/2019 3:46:18 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:20:00 AM
Lab ID: 1910G04-001
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0033	0.11		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
n-Propylbenzene	ND	0.0028	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
sec-Butylbenzene	ND	0.0040	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Styrene	ND	0.0028	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
tert-Butylbenzene	ND	0.0033	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0024	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0036	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Tetrachloroethene (PCE)	ND	0.0028	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
trans-1,2-DCE	ND	0.0032	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
trans-1,3-Dichloropropene	ND	0.0037	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0031	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0036	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,1,1-Trichloroethane	ND	0.0032	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,1,2-Trichloroethane	ND	0.0025	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Trichloroethene (TCE)	ND	0.0041	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Trichlorofluoromethane	ND	0.012	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
1,2,3-Trichloropropane	ND	0.0057	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Vinyl chloride	ND	0.0023	0.035		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Xylenes, Total	ND	0.0089	0.070		mg/Kg	1	11/2/2019 3:46:18 AM	B64178
Surr: Dibromofluoromethane	110		70-130		%Rec	1	11/2/2019 3:46:18 AM	B64178
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	11/2/2019 3:46:18 AM	B64178
Surr: Toluene-d8	105		70-130		%Rec	1	11/2/2019 3:46:18 AM	B64178
Surr: 4-Bromofluorobenzene	88.7		70-130		%Rec	1	11/2/2019 3:46:18 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:30:00 AM
Lab ID: 1910G04-002 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	52	1.9	9.6		mg/Kg	1	11/7/2019 12:55:09 AM	48574
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	11/7/2019 12:55:09 AM	48574
Surr: DNOP	112	0	70-130		%Rec	1	11/7/2019 12:55:09 AM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.92	3.0		mg/Kg	1	11/4/2019 9:28:22 PM	A64209
Surr: BFB	99.2	0	77.4-118		%Rec	1	11/4/2019 9:28:22 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	3.1	1.5	1.5		mg/Kg	5	11/7/2019 1:12:07 PM	48646
Chloride	130	7.5	7.5		mg/Kg	5	11/7/2019 1:12:07 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 1:12:07 PM	48646
Nitrogen, Nitrate (As N)	52	1.5	1.5		mg/Kg	5	11/7/2019 1:12:07 PM	48646
Sulfate	570	7.5	7.5		mg/Kg	5	11/7/2019 1:12:07 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.029	0.0018	0.033	J	mg/Kg	1	11/11/2019 6:10:28 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.75	5.1		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Arsenic	ND	2.9	5.1		mg/Kg	2	11/21/2019 8:13:47 PM	48604
Barium	290	0.047	0.20		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Beryllium	0.81	0.019	0.31		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Chromium	6.9	0.16	0.61		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Cobalt	3.8	0.22	0.61		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Iron	11000	74	250		mg/Kg	100	11/20/2019 8:10:39 PM	48604
Lead	4.9	0.50	0.51		mg/Kg	2	11/21/2019 8:13:47 PM	48604
Manganese	240	0.042	0.20		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Nickel	7.1	0.30	1.0		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Selenium	ND	2.6	5.2		mg/Kg	2	11/25/2019 6:46:57 PM	48977
Silver	ND	0.065	0.51		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Vanadium	15	0.14	5.1		mg/Kg	2	11/20/2019 8:09:03 PM	48604
Zinc	14	0.81	5.1		mg/Kg	2	11/20/2019 8:09:03 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.58	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Acenaphthylene	ND	0.53	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Aniline	ND	0.62	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Anthracene	ND	0.51	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Azobenzene	ND	0.67	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Benz(a)anthracene	ND	0.46	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:30:00 AM
Lab ID: 1910G04-002
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.43	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Benzo(b)fluoranthene	ND	0.43	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Benzo(g,h,i)perylene	ND	0.41	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Benzo(k)fluoranthene	ND	0.44	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Benzoic acid	ND	0.50	2.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Benzyl alcohol	ND	0.60	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Bis(2-chloroethoxy)methane	ND	0.71	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Bis(2-chloroethyl)ether	ND	0.59	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.55	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.69	2.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
4-Bromophenyl phenyl ether	ND	0.57	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Butyl benzyl phthalate	ND	0.49	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Carbazole	ND	0.56	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
4-Chloro-3-methylphenol	ND	0.74	2.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
4-Chloroaniline	ND	0.68	2.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2-Chloronaphthalene	ND	0.60	1.2		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2-Chlorophenol	ND	0.60	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
4-Chlorophenyl phenyl ether	ND	0.52	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Chrysene	ND	0.42	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Di-n-butyl phthalate	ND	0.72	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Di-n-octyl phthalate	ND	0.49	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Dibenz(a,h)anthracene	ND	0.44	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Dibenzofuran	ND	0.63	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
1,2-Dichlorobenzene	ND	0.58	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
1,3-Dichlorobenzene	ND	0.51	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
1,4-Dichlorobenzene	ND	0.51	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
3,3´-Dichlorobenzidine	ND	0.43	1.2		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Diethyl phthalate	ND	0.69	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Dimethyl phthalate	ND	0.64	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2,4-Dichlorophenol	ND	0.56	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2,4-Dimethylphenol	ND	0.53	1.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.44	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2,4-Dinitrophenol	ND	0.35	2.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2,4-Dinitrotoluene	ND	0.57	2.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2,6-Dinitrotoluene	ND	0.63	2.4		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Fluoranthene	ND	0.54	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Fluorene	ND	0.55	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Hexachlorobenzene	ND	0.60	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Hexachlorobutadiene	ND	0.67	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:30:00 AM
Lab ID: 1910G04-002
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.55	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Hexachloroethane	ND	0.54	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.48	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Isophorone	ND	0.71	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
1-Methylnaphthalene	ND	0.72	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2-Methylnaphthalene	ND	0.70	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2-Methylphenol	ND	0.57	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
3+4-Methylphenol	ND	0.59	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
N-Nitrosodi-n-propylamine	ND	0.69	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
N-Nitrosodiphenylamine	ND	0.51	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Naphthalene	ND	0.73	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2-Nitroaniline	ND	0.69	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
3-Nitroaniline	ND	0.66	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
4-Nitroaniline	ND	0.61	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Nitrobenzene	ND	0.67	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2-Nitrophenol	ND	0.66	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
4-Nitrophenol	ND	0.65	1.2		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Pentachlorophenol	ND	0.50	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Phenanthrene	ND	0.52	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Phenol	ND	0.60	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Pyrene	ND	0.45	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Pyridine	ND	0.58	1.9		mg/Kg	1	11/9/2019 1:15:00 PM	48568
1,2,4-Trichlorobenzene	ND	0.75	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2,4,5-Trichlorophenol	ND	0.62	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
2,4,6-Trichlorophenol	ND	0.51	0.96		mg/Kg	1	11/9/2019 1:15:00 PM	48568
Surr: 2-Fluorophenol	88.3		26.7-85.9	S	%Rec	1	11/9/2019 1:15:00 PM	48568
Surr: Phenol-d5	91.3		18.5-101		%Rec	1	11/9/2019 1:15:00 PM	48568
Surr: 2,4,6-Tribromophenol	100		35.8-85.6	S	%Rec	1	11/9/2019 1:15:00 PM	48568
Surr: Nitrobenzene-d5	91.6		40.8-95.2		%Rec	1	11/9/2019 1:15:00 PM	48568
Surr: 2-Fluorobiphenyl	106		34.7-85.2	S	%Rec	1	11/9/2019 1:15:00 PM	48568
Surr: 4-Terphenyl-d14	105		37.4-91.3	S	%Rec	1	11/9/2019 1:15:00 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0025	0.015		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Toluene	ND	0.0029	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Ethylbenzene	ND	0.0018	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0072	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0028	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0029	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0031	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:30:00 AM
Lab ID: 1910G04-002
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0028	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Naphthalene	ND	0.0061	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1-Methylnaphthalene	ND	0.017	0.12		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Acetone	ND	0.025	0.46		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Bromobenzene	ND	0.0029	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Bromodichloromethane	ND	0.0028	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Bromoform	ND	0.0027	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Bromomethane	ND	0.0073	0.091		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
2-Butanone	0.040	0.035	0.30	J	mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Carbon disulfide	ND	0.010	0.30		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Carbon tetrachloride	ND	0.0029	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Chlorobenzene	ND	0.0039	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Chloroethane	ND	0.0045	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Chloroform	ND	0.0024	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Chloromethane	ND	0.0029	0.091		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
2-Chlorotoluene	ND	0.0026	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
4-Chlorotoluene	ND	0.0025	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
cis-1,2-DCE	ND	0.0042	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
cis-1,3-Dichloropropene	ND	0.0026	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0031	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Dibromochloromethane	ND	0.0022	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Dibromomethane	ND	0.0033	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2-Dichlorobenzene	ND	0.0025	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,3-Dichlorobenzene	ND	0.0026	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,4-Dichlorobenzene	ND	0.0025	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Dichlorodifluoromethane	ND	0.0070	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,1-Dichloroethane	ND	0.0019	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,1-Dichloroethene	ND	0.012	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2-Dichloropropane	ND	0.0022	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,3-Dichloropropane	ND	0.0033	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
2,2-Dichloropropane	ND	0.0099	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,1-Dichloropropene	ND	0.0028	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Hexachlorobutadiene	ND	0.0031	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
2-Hexanone	ND	0.0050	0.30		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Isopropylbenzene	ND	0.0022	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
4-Isopropyltoluene	ND	0.0025	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
4-Methyl-2-pentanone	ND	0.0057	0.30		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Methylene chloride	ND	0.0054	0.091		mg/Kg	1	11/2/2019 5:12:26 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:30:00 AM
Lab ID: 1910G04-002
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0028	0.091		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
n-Propylbenzene	ND	0.0024	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
sec-Butylbenzene	ND	0.0034	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Styrene	ND	0.0024	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
tert-Butylbenzene	ND	0.0029	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0020	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0031	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Tetrachloroethene (PCE)	ND	0.0024	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
trans-1,2-DCE	ND	0.0028	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
trans-1,3-Dichloropropene	ND	0.0032	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0027	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0031	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,1,1-Trichloroethane	ND	0.0027	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,1,2-Trichloroethane	ND	0.0021	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Trichloroethene (TCE)	ND	0.0035	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Trichlorofluoromethane	ND	0.010	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
1,2,3-Trichloropropane	ND	0.0049	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Vinyl chloride	ND	0.0020	0.030		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Xylenes, Total	ND	0.0077	0.061		mg/Kg	1	11/2/2019 5:12:26 AM	B64178
Surr: Dibromofluoromethane	108		70-130		%Rec	1	11/2/2019 5:12:26 AM	B64178
Surr: 1,2-Dichloroethane-d4	94.7		70-130		%Rec	1	11/2/2019 5:12:26 AM	B64178
Surr: Toluene-d8	101		70-130		%Rec	1	11/2/2019 5:12:26 AM	B64178
Surr: 4-Bromofluorobenzene	89.4		70-130		%Rec	1	11/2/2019 5:12:26 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:40:00 AM
Lab ID: 1910G04-003
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.7	8.6		mg/Kg	1	11/5/2019 6:00:58 PM	48574
Motor Oil Range Organics (MRO)	ND	43	43		mg/Kg	1	11/5/2019 6:00:58 PM	48574
Surr: DNOP	87.5	0	70-130		%Rec	1	11/5/2019 6:00:58 PM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.69	2.3		mg/Kg	1	11/4/2019 9:51:20 PM	A64209
Surr: BFB	102	0	77.4-118		%Rec	1	11/4/2019 9:51:20 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	4.2	1.5	1.5		mg/Kg	5	11/7/2019 1:36:55 PM	48646
Chloride	21	7.5	7.5		mg/Kg	5	11/7/2019 1:36:55 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 1:36:55 PM	48646
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 1:36:55 PM	48646
Sulfate	76	7.5	7.5		mg/Kg	5	11/7/2019 1:36:55 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0057	0.0018	0.033	J	mg/Kg	1	11/11/2019 6:12:28 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.71	4.8		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Arsenic	ND	2.7	4.8		mg/Kg	2	11/21/2019 8:15:11 PM	48626
Barium	130	0.044	0.19		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Beryllium	0.93	0.018	0.29		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Cadmium	ND	0.047	0.19		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Chromium	6.3	0.15	0.58		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Cobalt	4.2	0.20	0.58		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Iron	11000	70	240		mg/Kg	100	11/20/2019 8:14:01 PM	48626
Lead	6.1	0.47	0.48		mg/Kg	2	11/21/2019 8:15:11 PM	48626
Manganese	340	0.040	0.19		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Nickel	7.6	0.29	0.96		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Selenium	ND	2.4	4.8		mg/Kg	2	11/21/2019 8:15:11 PM	48626
Silver	ND	0.061	0.48		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Vanadium	11	0.13	4.8		mg/Kg	2	11/20/2019 8:12:25 PM	48626
Zinc	12	0.76	4.8		mg/Kg	2	11/20/2019 8:12:25 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Aniline	ND	0.13	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Anthracene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Benz(a)anthracene	ND	0.096	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:40:00 AM
Lab ID: 1910G04-003
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.089	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Benzo(b)fluoranthene	ND	0.088	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Benzo(g,h,i)perylene	ND	0.086	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Benzo(k)fluoranthene	ND	0.091	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Benzoic acid	ND	0.10	0.50		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.14	0.50		mg/Kg	1	11/9/2019 1:43:46 PM	48568
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Carbazole	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
4-Chloro-3-methylphenol	ND	0.15	0.50		mg/Kg	1	11/9/2019 1:43:46 PM	48568
4-Chloroaniline	ND	0.14	0.50		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2-Chloronaphthalene	ND	0.12	0.25		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Chrysene	ND	0.088	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Di-n-butyl phthalate	ND	0.15	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Di-n-octyl phthalate	ND	0.10	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Dibenz(a,h)anthracene	ND	0.091	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
1,3-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
1,4-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
3,3´-Dichlorobenzidine	ND	0.089	0.25		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2,4-Dichlorophenol	ND	0.12	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg	1	11/9/2019 1:43:46 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.092	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2,4-Dinitrophenol	ND	0.073	0.50		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2,6-Dinitrotoluene	ND	0.13	0.50		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Fluorene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:40:00 AM
Lab ID: 1910G04-003
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.099	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Isophorone	ND	0.15	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2-Methylphenol	ND	0.12	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Nitrobenzene	ND	0.14	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2-Nitrophenol	ND	0.14	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
4-Nitrophenol	ND	0.14	0.25		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Pentachlorophenol	ND	0.10	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Phenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Pyrene	ND	0.094	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Pyridine	ND	0.12	0.40		mg/Kg	1	11/9/2019 1:43:46 PM	48568
1,2,4-Trichlorobenzene	ND	0.16	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
2,4,6-Trichlorophenol	ND	0.10	0.20		mg/Kg	1	11/9/2019 1:43:46 PM	48568
Surr: 2-Fluorophenol	47.8		26.7-85.9		%Rec	1	11/9/2019 1:43:46 PM	48568
Surr: Phenol-d5	51.1		18.5-101		%Rec	1	11/9/2019 1:43:46 PM	48568
Surr: 2,4,6-Tribromophenol	59.2		35.8-85.6		%Rec	1	11/9/2019 1:43:46 PM	48568
Surr: Nitrobenzene-d5	53.9		40.8-95.2		%Rec	1	11/9/2019 1:43:46 PM	48568
Surr: 2-Fluorobiphenyl	54.0		34.7-85.2		%Rec	1	11/9/2019 1:43:46 PM	48568
Surr: 4-Terphenyl-d14	61.6		37.4-91.3		%Rec	1	11/9/2019 1:43:46 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0019	0.011		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Toluene	ND	0.0022	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Ethylbenzene	ND	0.0013	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0054	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0021	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0022	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0023	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:40:00 AM
Lab ID: 1910G04-003
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0021	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Naphthalene	ND	0.0046	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1-Methylnaphthalene	ND	0.013	0.092		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
2-Methylnaphthalene	ND	0.010	0.092		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Acetone	ND	0.019	0.34		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Bromobenzene	ND	0.0022	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Bromodichloromethane	ND	0.0021	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Bromoform	ND	0.0021	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Bromomethane	ND	0.0055	0.069		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
2-Butanone	ND	0.027	0.23		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Carbon disulfide	ND	0.0076	0.23		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Carbon tetrachloride	ND	0.0022	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Chlorobenzene	ND	0.0029	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Chloroethane	ND	0.0034	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Chloroform	ND	0.0018	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Chloromethane	ND	0.0022	0.069		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
2-Chlorotoluene	ND	0.0020	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
4-Chlorotoluene	ND	0.0019	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
cis-1,2-DCE	ND	0.0031	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
cis-1,3-Dichloropropene	ND	0.0019	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0024	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Dibromochloromethane	ND	0.0016	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Dibromomethane	ND	0.0025	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2-Dichlorobenzene	ND	0.0019	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,3-Dichlorobenzene	ND	0.0020	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,4-Dichlorobenzene	ND	0.0019	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Dichlorodifluoromethane	ND	0.0053	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,1-Dichloroethane	ND	0.0015	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,1-Dichloroethene	ND	0.0092	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2-Dichloropropane	ND	0.0017	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,3-Dichloropropane	ND	0.0025	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
2,2-Dichloropropane	ND	0.0075	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,1-Dichloropropene	ND	0.0021	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Hexachlorobutadiene	ND	0.0023	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
2-Hexanone	ND	0.0038	0.23		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Isopropylbenzene	ND	0.0017	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
4-Isopropyltoluene	ND	0.0019	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
4-Methyl-2-pentanone	ND	0.0043	0.23		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Methylene chloride	ND	0.0040	0.069		mg/Kg	1	11/2/2019 5:41:06 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:40:00 AM
Lab ID: 1910G04-003
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0021	0.069		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
n-Propylbenzene	ND	0.0018	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
sec-Butylbenzene	ND	0.0026	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Styrene	ND	0.0018	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
tert-Butylbenzene	ND	0.0022	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0015	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0023	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Tetrachloroethene (PCE)	ND	0.0018	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
trans-1,2-DCE	ND	0.0021	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
trans-1,3-Dichloropropene	ND	0.0024	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0020	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0023	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,1,1-Trichloroethane	ND	0.0021	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,1,2-Trichloroethane	ND	0.0016	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Trichloroethene (TCE)	ND	0.0027	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Trichlorofluoromethane	ND	0.0078	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
1,2,3-Trichloropropane	ND	0.0037	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Vinyl chloride	ND	0.0015	0.023		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Xylenes, Total	ND	0.0058	0.046		mg/Kg	1	11/2/2019 5:41:06 AM	B64178
Surr: Dibromofluoromethane	109		70-130		%Rec	1	11/2/2019 5:41:06 AM	B64178
Surr: 1,2-Dichloroethane-d4	93.2		70-130		%Rec	1	11/2/2019 5:41:06 AM	B64178
Surr: Toluene-d8	104		70-130		%Rec	1	11/2/2019 5:41:06 AM	B64178
Surr: 4-Bromofluorobenzene	83.9		70-130		%Rec	1	11/2/2019 5:41:06 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:50:00 AM
Lab ID: 1910G04-004 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.8	8.9		mg/Kg	1	11/5/2019 6:23:08 PM	48574
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	11/5/2019 6:23:08 PM	48574
Surr: DNOP	86.3	0	70-130		%Rec	1	11/5/2019 6:23:08 PM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.88	2.9		mg/Kg	1	11/4/2019 10:14:16 PM	A64209
Surr: BFB	98.1	0	77.4-118		%Rec	1	11/4/2019 10:14:16 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	1.7	1.5	1.5		mg/Kg	5	11/7/2019 2:01:45 PM	48646
Chloride	9.4	7.5	7.5		mg/Kg	5	11/7/2019 2:01:45 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 2:01:45 PM	48646
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 2:01:45 PM	48646
Sulfate	78	7.5	7.5		mg/Kg	5	11/7/2019 2:01:45 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0037	0.0018	0.032	J	mg/Kg	1	11/11/2019 6:14:30 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.75	5.1		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Arsenic	ND	2.9	5.1		mg/Kg	2	11/21/2019 8:16:35 PM	48604
Barium	250	0.047	0.20		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Beryllium	0.94	0.019	0.30		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Chromium	13	0.16	0.61		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Cobalt	6.0	0.21	0.61		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Iron	17000	74	250		mg/Kg	100	11/20/2019 8:21:32 PM	48604
Lead	0.57	0.49	0.51		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Manganese	500	0.042	0.20		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Nickel	15	0.30	1.0		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Selenium	ND	2.4	4.8		mg/Kg	2	11/25/2019 6:48:38 PM	48977
Silver	ND	0.065	0.51		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Vanadium	14	0.14	5.1		mg/Kg	2	11/20/2019 8:19:54 PM	48604
Zinc	16	0.80	5.1		mg/Kg	2	11/20/2019 8:19:54 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Acenaphthylene	ND	0.10	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Aniline	ND	0.12	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Anthracene	ND	0.099	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Azobenzene	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Benz(a)anthracene	ND	0.089	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:50:00 AM
Lab ID: 1910G04-004
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.082	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Benzo(b)fluoranthene	ND	0.082	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Benzo(g,h,i)perylene	ND	0.079	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Benzo(k)fluoranthene	ND	0.084	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Benzoic acid	ND	0.096	0.46		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Benzyl alcohol	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Bis(2-chloroethyl)ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.13	0.46		mg/Kg	1	11/9/2019 2:12:34 PM	48568
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Butyl benzyl phthalate	ND	0.095	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Carbazole	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
4-Chloro-3-methylphenol	ND	0.14	0.46		mg/Kg	1	11/9/2019 2:12:34 PM	48568
4-Chloroaniline	ND	0.13	0.46		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2-Chloronaphthalene	ND	0.12	0.23		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
4-Chlorophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Chrysene	ND	0.082	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Di-n-butyl phthalate	ND	0.14	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Di-n-octyl phthalate	ND	0.095	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Dibenz(a,h)anthracene	ND	0.084	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Dibenzofuran	ND	0.12	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
1,2-Dichlorobenzene	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
1,3-Dichlorobenzene	ND	0.098	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
1,4-Dichlorobenzene	ND	0.099	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
3,3´-Dichlorobenzidine	ND	0.082	0.23		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Diethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Dimethyl phthalate	ND	0.12	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2,4-Dichlorophenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2,4-Dimethylphenol	ND	0.10	0.28		mg/Kg	1	11/9/2019 2:12:34 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.086	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2,4-Dinitrophenol	ND	0.067	0.46		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2,4-Dinitrotoluene	ND	0.11	0.46		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2,6-Dinitrotoluene	ND	0.12	0.46		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Fluoranthene	ND	0.10	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Fluorene	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Hexachlorobenzene	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:50:00 AM
Lab ID: 1910G04-004 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Hexachloroethane	ND	0.10	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.092	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Isophorone	ND	0.14	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2-Methylnaphthalene	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2-Methylphenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
3+4-Methylphenol	ND	0.11	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
N-Nitrosodi-n-propylamine	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
N-Nitrosodiphenylamine	ND	0.097	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Naphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Nitrobenzene	ND	0.13	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
4-Nitrophenol	ND	0.13	0.23		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Pentachlorophenol	ND	0.095	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Phenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Pyrene	ND	0.087	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Pyridine	ND	0.11	0.37		mg/Kg	1	11/9/2019 2:12:34 PM	48568
1,2,4-Trichlorobenzene	ND	0.14	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
2,4,6-Trichlorophenol	ND	0.097	0.19		mg/Kg	1	11/9/2019 2:12:34 PM	48568
Surr: 2-Fluorophenol	43.4		26.7-85.9		%Rec	1	11/9/2019 2:12:34 PM	48568
Surr: Phenol-d5	46.9		18.5-101		%Rec	1	11/9/2019 2:12:34 PM	48568
Surr: 2,4,6-Tribromophenol	50.2		35.8-85.6		%Rec	1	11/9/2019 2:12:34 PM	48568
Surr: Nitrobenzene-d5	47.5		40.8-95.2		%Rec	1	11/9/2019 2:12:34 PM	48568
Surr: 2-Fluorobiphenyl	47.1		34.7-85.2		%Rec	1	11/9/2019 2:12:34 PM	48568
Surr: 4-Terphenyl-d14	53.0		37.4-91.3		%Rec	1	11/9/2019 2:12:34 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0024	0.015		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Toluene	ND	0.0028	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Ethylbenzene	ND	0.0017	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0069	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0027	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0028	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0030	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:50:00 AM
Lab ID: 1910G04-004
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0027	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Naphthalene	ND	0.0058	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1-Methylnaphthalene	ND	0.017	0.12		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Acetone	ND	0.024	0.44		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Bromobenzene	ND	0.0028	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Bromodichloromethane	ND	0.0027	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Bromoform	ND	0.0026	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Bromomethane	ND	0.0070	0.087		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
2-Butanone	0.045	0.034	0.29	J	mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Carbon disulfide	ND	0.0096	0.29		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Carbon tetrachloride	ND	0.0028	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Chlorobenzene	ND	0.0037	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Chloroethane	ND	0.0043	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Chloroform	ND	0.0023	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Chloromethane	ND	0.0028	0.087		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
2-Chlorotoluene	ND	0.0025	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
4-Chlorotoluene	ND	0.0024	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
cis-1,2-DCE	ND	0.0040	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
cis-1,3-Dichloropropene	ND	0.0025	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0030	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Dibromochloromethane	ND	0.0021	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Dibromomethane	ND	0.0031	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,3-Dichlorobenzene	ND	0.0025	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,4-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Dichlorodifluoromethane	ND	0.0068	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,1-Dichloroethane	ND	0.0019	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,1-Dichloroethene	ND	0.012	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2-Dichloropropane	ND	0.0021	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,3-Dichloropropane	ND	0.0032	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
2,2-Dichloropropane	ND	0.0095	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,1-Dichloropropene	ND	0.0027	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Hexachlorobutadiene	ND	0.0030	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
2-Hexanone	ND	0.0048	0.29		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Isopropylbenzene	ND	0.0021	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
4-Isopropyltoluene	ND	0.0024	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
4-Methyl-2-pentanone	ND	0.0055	0.29		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Methylene chloride	ND	0.0051	0.087		mg/Kg	1	11/2/2019 6:09:44 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-4 (14-16')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 11:50:00 AM
Lab ID: 1910G04-004
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0027	0.087		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
n-Propylbenzene	ND	0.0023	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
sec-Butylbenzene	ND	0.0033	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Styrene	ND	0.0023	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
tert-Butylbenzene	ND	0.0028	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0020	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0030	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Tetrachloroethene (PCE)	ND	0.0023	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
trans-1,2-DCE	ND	0.0027	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
trans-1,3-Dichloropropene	ND	0.0031	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0026	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0029	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,1,1-Trichloroethane	ND	0.0026	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,1,2-Trichloroethane	ND	0.0021	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Trichloroethene (TCE)	ND	0.0034	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Trichlorofluoromethane	ND	0.0099	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
1,2,3-Trichloropropane	ND	0.0047	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Vinyl chloride	ND	0.0019	0.029		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Xylenes, Total	ND	0.0074	0.058		mg/Kg	1	11/2/2019 6:09:44 AM	B64178
Surr: Dibromofluoromethane	109		70-130		%Rec	1	11/2/2019 6:09:44 AM	B64178
Surr: 1,2-Dichloroethane-d4	94.1		70-130		%Rec	1	11/2/2019 6:09:44 AM	B64178
Surr: Toluene-d8	99.4		70-130		%Rec	1	11/2/2019 6:09:44 AM	B64178
Surr: 4-Bromofluorobenzene	86.4		70-130		%Rec	1	11/2/2019 6:09:44 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 12:40:00 PM
Lab ID: 1910G04-005 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	3.1	2.0	9.9	J	mg/Kg	1	11/7/2019 4:17:59 PM	48574
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	11/7/2019 4:17:59 PM	48574
Surr: DNOP	95.6	0	70-130		%Rec	1	11/7/2019 4:17:59 PM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.99	3.3		mg/Kg	1	11/4/2019 10:37:19 PM	A64209
Surr: BFB	99.9	0	77.4-118		%Rec	1	11/4/2019 10:37:19 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	2.9	1.5	1.5		mg/Kg	5	11/7/2019 2:26:34 PM	48646
Chloride	64	7.5	7.5		mg/Kg	5	11/7/2019 2:26:34 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 2:26:34 PM	48646
Nitrogen, Nitrate (As N)	25	1.5	1.5		mg/Kg	5	11/7/2019 2:26:34 PM	48646
Sulfate	140	7.5	7.5		mg/Kg	5	11/7/2019 2:26:34 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.039	0.0018	0.033		mg/Kg	1	11/11/2019 6:16:32 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.72	4.9		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Arsenic	ND	2.8	4.9		mg/Kg	2	11/21/2019 8:17:59 PM	48626
Barium	290	0.046	0.20		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Beryllium	0.83	0.018	0.29		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Cadmium	ND	0.048	0.20		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Chromium	8.0	0.16	0.59		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Cobalt	3.2	0.21	0.59		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Iron	11000	71	250		mg/Kg	100	11/20/2019 8:27:01 PM	48626
Lead	5.9	0.48	0.49		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Manganese	89	0.041	0.20		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Nickel	7.2	0.29	0.98		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Selenium	ND	2.5	4.9		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Silver	ND	0.063	0.49		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Vanadium	13	0.13	4.9		mg/Kg	2	11/20/2019 8:25:23 PM	48626
Zinc	26	0.78	4.9		mg/Kg	2	11/20/2019 8:25:23 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Acenaphthylene	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Aniline	ND	1.3	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Anthracene	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Azobenzene	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Benz(a)anthracene	ND	0.96	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 12:40:00 PM
Lab ID: 1910G04-005
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.88	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Benzo(b)fluoranthene	ND	0.88	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Benzo(g,h,i)perylene	ND	0.85	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Benzo(k)fluoranthene	ND	0.90	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Benzoic acid	ND	1.0	5.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Benzyl alcohol	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Bis(2-chloroethoxy)methane	ND	1.5	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Bis(2-chloroethyl)ether	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Bis(2-chloroisopropyl)ether	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Bis(2-ethylhexyl)phthalate	ND	1.4	5.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
4-Bromophenyl phenyl ether	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Butyl benzyl phthalate	ND	1.0	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Carbazole	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
4-Chloro-3-methylphenol	ND	1.5	5.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
4-Chloroaniline	ND	1.4	5.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2-Chloronaphthalene	ND	1.2	2.5	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2-Chlorophenol	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
4-Chlorophenyl phenyl ether	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Chrysene	ND	0.87	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Di-n-butyl phthalate	ND	1.5	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Di-n-octyl phthalate	ND	1.0	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Dibenz(a,h)anthracene	ND	0.90	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Dibenzofuran	ND	1.3	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
1,2-Dichlorobenzene	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
1,3-Dichlorobenzene	ND	1.0	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
1,4-Dichlorobenzene	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
3,3´-Dichlorobenzidine	ND	0.88	2.5	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Diethyl phthalate	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Dimethyl phthalate	ND	1.3	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2,4-Dichlorophenol	ND	1.2	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2,4-Dimethylphenol	ND	1.1	3.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.92	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2,4-Dinitrophenol	ND	0.72	5.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2,4-Dinitrotoluene	ND	1.2	5.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2,6-Dinitrotoluene	ND	1.3	5.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Fluoranthene	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Fluorene	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Hexachlorobenzene	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Hexachlorobutadiene	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 12:40:00 PM
Lab ID: 1910G04-005 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Hexachloroethane	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.99	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Isophorone	ND	1.5	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
1-Methylnaphthalene	ND	1.5	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2-Methylnaphthalene	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2-Methylphenol	ND	1.2	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
3+4-Methylphenol	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
N-Nitrosodi-n-propylamine	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Naphthalene	ND	1.5	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2-Nitroaniline	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
3-Nitroaniline	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
4-Nitroaniline	ND	1.3	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Nitrobenzene	ND	1.4	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2-Nitrophenol	ND	1.4	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
4-Nitrophenol	ND	1.3	2.5	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Pentachlorophenol	ND	1.0	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Phenanthrene	ND	1.1	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Phenol	ND	1.2	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Pyrene	ND	0.93	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Pyridine	ND	1.2	4.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
1,2,4-Trichlorobenzene	ND	1.5	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2,4,5-Trichlorophenol	ND	1.3	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
2,4,6-Trichlorophenol	ND	1.0	2.0	D	mg/Kg	1	11/9/2019 2:41:22 PM	48568
Surr: 2-Fluorophenol	0		26.7-85.9	SD	%Rec	1	11/9/2019 2:41:22 PM	48568
Surr: Phenol-d5	0		18.5-101	SD	%Rec	1	11/9/2019 2:41:22 PM	48568
Surr: 2,4,6-Tribromophenol	0		35.8-85.6	SD	%Rec	1	11/9/2019 2:41:22 PM	48568
Surr: Nitrobenzene-d5	0		40.8-95.2	SD	%Rec	1	11/9/2019 2:41:22 PM	48568
Surr: 2-Fluorobiphenyl	0		34.7-85.2	SD	%Rec	1	11/9/2019 2:41:22 PM	48568
Surr: 4-Terphenyl-d14	0		37.4-91.3	SD	%Rec	1	11/9/2019 2:41:22 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0027	0.016		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Toluene	ND	0.0031	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Ethylbenzene	ND	0.0019	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0078	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0030	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0032	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0033	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 12:40:00 PM
Lab ID: 1910G04-005 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0030	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Naphthalene	ND	0.0066	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1-Methylnaphthalene	ND	0.019	0.13		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
2-Methylnaphthalene	ND	0.014	0.13		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Acetone	ND	0.027	0.49		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Bromobenzene	ND	0.0031	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Bromodichloromethane	ND	0.0030	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Bromoform	ND	0.0030	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Bromomethane	ND	0.0079	0.098		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
2-Butanone	ND	0.038	0.33		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Carbon disulfide	ND	0.011	0.33		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Carbon tetrachloride	ND	0.0031	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Chlorobenzene	ND	0.0042	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Chloroethane	ND	0.0048	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Chloroform	ND	0.0026	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Chloromethane	ND	0.0031	0.098		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
2-Chlorotoluene	ND	0.0028	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
4-Chlorotoluene	ND	0.0027	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
cis-1,2-DCE	ND	0.0045	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
cis-1,3-Dichloropropene	ND	0.0028	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0034	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Dibromochloromethane	ND	0.0023	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Dibromomethane	ND	0.0035	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2-Dichlorobenzene	ND	0.0027	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,3-Dichlorobenzene	ND	0.0028	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,4-Dichlorobenzene	ND	0.0027	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Dichlorodifluoromethane	ND	0.0076	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,1-Dichloroethane	ND	0.0021	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,1-Dichloroethene	ND	0.013	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2-Dichloropropane	ND	0.0024	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,3-Dichloropropane	ND	0.0035	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
2,2-Dichloropropane	ND	0.011	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,1-Dichloropropene	ND	0.0030	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Hexachlorobutadiene	ND	0.0033	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
2-Hexanone	ND	0.0054	0.33		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Isopropylbenzene	ND	0.0024	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
4-Isopropyltoluene	ND	0.0027	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
4-Methyl-2-pentanone	ND	0.0062	0.33		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Methylene chloride	ND	0.0058	0.098		mg/Kg	1	11/2/2019 6:38:19 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 12:40:00 PM
Lab ID: 1910G04-005
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0031	0.098		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
n-Propylbenzene	ND	0.0026	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
sec-Butylbenzene	ND	0.0037	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Styrene	ND	0.0026	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
tert-Butylbenzene	ND	0.0031	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0022	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0033	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Tetrachloroethene (PCE)	ND	0.0026	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
trans-1,2-DCE	ND	0.0030	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
trans-1,3-Dichloropropene	ND	0.0035	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0029	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0033	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,1,1-Trichloroethane	ND	0.0030	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,1,2-Trichloroethane	ND	0.0023	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Trichloroethene (TCE)	ND	0.0038	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Trichlorofluoromethane	ND	0.011	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
1,2,3-Trichloropropane	ND	0.0053	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Vinyl chloride	ND	0.0021	0.033		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Xylenes, Total	ND	0.0083	0.065		mg/Kg	1	11/2/2019 6:38:19 AM	B64178
Surr: Dibromofluoromethane	110		70-130		%Rec	1	11/2/2019 6:38:19 AM	B64178
Surr: 1,2-Dichloroethane-d4	94.7		70-130		%Rec	1	11/2/2019 6:38:19 AM	B64178
Surr: Toluene-d8	102		70-130		%Rec	1	11/2/2019 6:38:19 AM	B64178
Surr: 4-Bromofluorobenzene	89.5		70-130		%Rec	1	11/2/2019 6:38:19 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:00:00 PM
Lab ID: 1910G04-006 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.9	9.3		mg/Kg	1	11/5/2019 7:07:25 PM	48574
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	11/5/2019 7:07:25 PM	48574
Surr: DNOP	91.0	0	70-130		%Rec	1	11/5/2019 7:07:25 PM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.76	2.5		mg/Kg	1	11/4/2019 11:00:16 PM	A64209
Surr: BFB	100	0	77.4-118		%Rec	1	11/4/2019 11:00:16 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	2.6	1.5	1.5		mg/Kg	5	11/7/2019 3:16:13 PM	48646
Chloride	45	7.5	7.5		mg/Kg	5	11/7/2019 3:16:13 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 3:16:13 PM	48646
Nitrogen, Nitrate (As N)	25	1.5	1.5		mg/Kg	5	11/7/2019 3:16:13 PM	48646
Sulfate	280	7.5	7.5		mg/Kg	5	11/7/2019 3:16:13 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0064	0.0018	0.033	J	mg/Kg	1	11/11/2019 6:22:44 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.76	5.2		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Arsenic	ND	3.0	5.2		mg/Kg	2	11/21/2019 8:19:23 PM	48626
Barium	280	0.048	0.21		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Beryllium	0.88	0.019	0.31		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Cadmium	ND	0.050	0.21		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Chromium	7.4	0.17	0.62		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Cobalt	3.9	0.22	0.62		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Iron	12000	75	260		mg/Kg	100	11/20/2019 8:30:23 PM	48626
Lead	3.3	0.50	0.52		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Manganese	160	0.043	0.21		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Nickel	7.2	0.31	1.0		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Selenium	ND	2.6	5.2		mg/Kg	2	11/21/2019 8:19:23 PM	48626
Silver	ND	0.066	0.52		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Vanadium	15	0.14	5.2		mg/Kg	2	11/20/2019 8:28:48 PM	48626
Zinc	12	0.82	5.2		mg/Kg	2	11/20/2019 8:28:48 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Acenaphthylene	ND	0.21	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Aniline	ND	0.24	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Anthracene	ND	0.20	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Azobenzene	ND	0.26	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Benz(a)anthracene	ND	0.18	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:00:00 PM
Lab ID: 1910G04-006
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.17	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Benzo(b)fluoranthene	ND	0.17	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Benzo(g,h,i)perylene	ND	0.16	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Benzo(k)fluoranthene	ND	0.17	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Benzoic acid	ND	0.19	0.94		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Benzyl alcohol	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Bis(2-chloroethoxy)methane	ND	0.28	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Bis(2-chloroethyl)ether	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.21	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.27	0.94		mg/Kg	1	11/9/2019 3:10:14 PM	48568
4-Bromophenyl phenyl ether	ND	0.22	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Butyl benzyl phthalate	ND	0.19	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Carbazole	ND	0.22	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
4-Chloro-3-methylphenol	ND	0.29	0.94		mg/Kg	1	11/9/2019 3:10:14 PM	48568
4-Chloroaniline	ND	0.27	0.94		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2-Chloronaphthalene	ND	0.23	0.47		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2-Chlorophenol	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
4-Chlorophenyl phenyl ether	ND	0.20	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Chrysene	ND	0.17	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Di-n-butyl phthalate	ND	0.28	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Di-n-octyl phthalate	ND	0.19	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Dibenz(a,h)anthracene	ND	0.17	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Dibenzofuran	ND	0.25	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
1,2-Dichlorobenzene	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
1,3-Dichlorobenzene	ND	0.20	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
1,4-Dichlorobenzene	ND	0.20	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
3,3´-Dichlorobenzidine	ND	0.17	0.47		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Diethyl phthalate	ND	0.27	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Dimethyl phthalate	ND	0.25	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2,4-Dichlorophenol	ND	0.22	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2,4-Dimethylphenol	ND	0.21	0.56		mg/Kg	1	11/9/2019 3:10:14 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.17	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2,4-Dinitrophenol	ND	0.14	0.94		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2,4-Dinitrotoluene	ND	0.22	0.94		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2,6-Dinitrotoluene	ND	0.25	0.94		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Fluoranthene	ND	0.21	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Fluorene	ND	0.21	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Hexachlorobenzene	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Hexachlorobutadiene	ND	0.26	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:00:00 PM
Lab ID: 1910G04-006 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.21	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Hexachloroethane	ND	0.21	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.19	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Isophorone	ND	0.28	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
1-Methylnaphthalene	ND	0.28	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2-Methylnaphthalene	ND	0.27	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2-Methylphenol	ND	0.22	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
3+4-Methylphenol	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
N-Nitrosodi-n-propylamine	ND	0.27	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
N-Nitrosodiphenylamine	ND	0.20	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Naphthalene	ND	0.28	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2-Nitroaniline	ND	0.27	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
3-Nitroaniline	ND	0.26	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
4-Nitroaniline	ND	0.24	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Nitrobenzene	ND	0.26	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2-Nitrophenol	ND	0.26	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
4-Nitrophenol	ND	0.25	0.47		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Pentachlorophenol	ND	0.19	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Phenanthrene	ND	0.20	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Phenol	ND	0.23	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Pyrene	ND	0.18	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Pyridine	ND	0.23	0.75		mg/Kg	1	11/9/2019 3:10:14 PM	48568
1,2,4-Trichlorobenzene	ND	0.29	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2,4,5-Trichlorophenol	ND	0.24	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
2,4,6-Trichlorophenol	ND	0.20	0.38		mg/Kg	1	11/9/2019 3:10:14 PM	48568
Surr: 2-Fluorophenol	67.1		26.7-85.9		%Rec	1	11/9/2019 3:10:14 PM	48568
Surr: Phenol-d5	74.3		18.5-101		%Rec	1	11/9/2019 3:10:14 PM	48568
Surr: 2,4,6-Tribromophenol	69.0		35.8-85.6		%Rec	1	11/9/2019 3:10:14 PM	48568
Surr: Nitrobenzene-d5	76.2		40.8-95.2		%Rec	1	11/9/2019 3:10:14 PM	48568
Surr: 2-Fluorobiphenyl	72.1		34.7-85.2		%Rec	1	11/9/2019 3:10:14 PM	48568
Surr: 4-Terphenyl-d14	67.9		37.4-91.3		%Rec	1	11/9/2019 3:10:14 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0021	0.013		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Toluene	ND	0.0024	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Ethylbenzene	ND	0.0015	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0060	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0023	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0024	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0026	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:00:00 PM
Lab ID: 1910G04-006 **Matrix:** SOIL **Received Date:** 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0023	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Naphthalene	ND	0.0051	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1-Methylnaphthalene	ND	0.015	0.10		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
2-Methylnaphthalene	ND	0.011	0.10		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Acetone	ND	0.021	0.38		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Bromobenzene	ND	0.0024	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Bromodichloromethane	ND	0.0023	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Bromoform	ND	0.0023	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Bromomethane	ND	0.0061	0.076		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
2-Butanone	ND	0.029	0.25		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Carbon disulfide	ND	0.0083	0.25		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Carbon tetrachloride	ND	0.0024	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Chlorobenzene	ND	0.0032	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Chloroethane	ND	0.0037	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Chloroform	ND	0.0020	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Chloromethane	ND	0.0024	0.076		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
2-Chlorotoluene	ND	0.0022	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
4-Chlorotoluene	ND	0.0021	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
cis-1,2-DCE	ND	0.0035	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
cis-1,3-Dichloropropene	ND	0.0021	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0026	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Dibromochloromethane	ND	0.0018	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Dibromomethane	ND	0.0027	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2-Dichlorobenzene	ND	0.0021	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,3-Dichlorobenzene	ND	0.0022	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,4-Dichlorobenzene	ND	0.0021	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Dichlorodifluoromethane	ND	0.0059	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,1-Dichloroethane	ND	0.0016	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,1-Dichloroethene	ND	0.010	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2-Dichloropropane	ND	0.0018	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,3-Dichloropropane	ND	0.0027	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
2,2-Dichloropropane	ND	0.0082	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,1-Dichloropropene	ND	0.0023	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Hexachlorobutadiene	ND	0.0026	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
2-Hexanone	ND	0.0042	0.25		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Isopropylbenzene	ND	0.0018	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
4-Isopropyltoluene	ND	0.0021	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
4-Methyl-2-pentanone	ND	0.0048	0.25		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Methylene chloride	ND	0.0045	0.076		mg/Kg	1	11/2/2019 7:06:57 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:00:00 PM
Lab ID: 1910G04-006
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0024	0.076		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
n-Propylbenzene	ND	0.0020	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
sec-Butylbenzene	ND	0.0028	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Styrene	ND	0.0020	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
tert-Butylbenzene	ND	0.0024	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0017	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0026	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Tetrachloroethene (PCE)	ND	0.0020	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
trans-1,2-DCE	ND	0.0023	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
trans-1,3-Dichloropropene	ND	0.0027	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0022	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0026	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,1,1-Trichloroethane	ND	0.0023	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,1,2-Trichloroethane	ND	0.0018	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Trichloroethene (TCE)	ND	0.0029	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Trichlorofluoromethane	ND	0.0086	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
1,2,3-Trichloropropane	ND	0.0041	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Vinyl chloride	ND	0.0016	0.025		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Xylenes, Total	ND	0.0064	0.050		mg/Kg	1	11/2/2019 7:06:57 AM	B64178
Surr: Dibromofluoromethane	109		70-130		%Rec	1	11/2/2019 7:06:57 AM	B64178
Surr: 1,2-Dichloroethane-d4	95.8		70-130		%Rec	1	11/2/2019 7:06:57 AM	B64178
Surr: Toluene-d8	102		70-130		%Rec	1	11/2/2019 7:06:57 AM	B64178
Surr: 4-Bromofluorobenzene	86.5		70-130		%Rec	1	11/2/2019 7:06:57 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:20:00 PM
Lab ID: 1910G04-007
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	1.9	9.7		mg/Kg	1	11/7/2019 4:51:29 PM	48590
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	11/7/2019 4:51:29 PM	48590
Surr: DNOP	94.0	0	70-130		%Rec	1	11/7/2019 4:51:29 PM	48590
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.4	4.6		mg/Kg	1	11/6/2019 4:11:29 PM	48591
Surr: BFB	93.6	0	77.4-118		%Rec	1	11/6/2019 4:11:29 PM	48591
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	2.3	1.5	1.5		mg/Kg	5	11/7/2019 3:41:02 PM	48646
Chloride	44	7.5	7.5		mg/Kg	5	11/7/2019 3:41:02 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 3:41:02 PM	48646
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 3:41:02 PM	48646
Sulfate	39	7.5	7.5		mg/Kg	5	11/7/2019 3:41:02 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0032	0.0018	0.033	J	mg/Kg	1	11/11/2019 6:24:47 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.72	4.9		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Arsenic	ND	2.8	4.9		mg/Kg	2	11/21/2019 8:20:47 PM	48604
Barium	350	0.045	0.20		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Beryllium	0.94	0.018	0.29		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Cadmium	ND	0.047	0.20		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Chromium	7.4	0.16	0.59		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Cobalt	3.9	0.21	0.59		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Iron	12000	71	240		mg/Kg	100	11/20/2019 8:33:45 PM	48604
Lead	4.0	0.47	0.49		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Manganese	160	0.041	0.20		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Nickel	7.5	0.29	0.98		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Selenium	ND	2.6	5.2		mg/Kg	2	11/25/2019 6:50:27 PM	48977
Silver	ND	0.063	0.49		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Vanadium	15	0.13	4.9		mg/Kg	2	11/20/2019 8:32:09 PM	48604
Zinc	13	0.77	4.9		mg/Kg	2	11/20/2019 8:32:09 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Acenaphthylene	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Aniline	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Anthracene	ND	0.10	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Azobenzene	ND	0.14	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Benz(a)anthracene	ND	0.093	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:20:00 PM
Lab ID: 1910G04-007
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.086	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Benzo(b)fluoranthene	ND	0.086	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Benzo(g,h,i)perylene	ND	0.083	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Benzo(k)fluoranthene	ND	0.088	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Benzoic acid	ND	0.10	0.48		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Bis(2-chloroethyl)ether	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Bis(2-ethylhexyl)phthalate	0.15	0.14	0.48	J	mg/Kg	1	11/10/2019 2:32:58 PM	48625
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Butyl benzyl phthalate	ND	0.099	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Carbazole	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
4-Chloro-3-methylphenol	ND	0.15	0.48		mg/Kg	1	11/10/2019 2:32:58 PM	48625
4-Chloroaniline	ND	0.14	0.48		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2-Chloronaphthalene	ND	0.12	0.24		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
4-Chlorophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Chrysene	ND	0.085	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Di-n-butyl phthalate	0.25	0.14	0.39	J	mg/Kg	1	11/10/2019 2:32:58 PM	48625
Di-n-octyl phthalate	ND	0.099	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Dibenz(a,h)anthracene	ND	0.088	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Dibenzofuran	ND	0.13	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
1,2-Dichlorobenzene	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
1,3-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
1,4-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
3,3´-Dichlorobenzidine	ND	0.086	0.24		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Diethyl phthalate	ND	0.14	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Dimethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2,4-Dichlorophenol	ND	0.11	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2,4-Dimethylphenol	ND	0.11	0.29		mg/Kg	1	11/10/2019 2:32:58 PM	48625
4,6-Dinitro-2-methylphenol	ND	0.089	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2,4-Dinitrophenol	ND	0.070	0.48		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2,4-Dinitrotoluene	ND	0.11	0.48		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2,6-Dinitrotoluene	ND	0.13	0.48		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Fluoranthene	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Fluorene	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:20:00 PM
Lab ID: 1910G04-007
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Hexachloroethane	ND	0.11	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Indeno(1,2,3-cd)pyrene	ND	0.096	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Isophorone	ND	0.14	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2-Methylphenol	ND	0.11	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
3+4-Methylphenol	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
N-Nitrosodi-n-propylamine	ND	0.14	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
N-Nitrosodiphenylamine	ND	0.10	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Naphthalene	ND	0.15	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2-Nitroaniline	ND	0.14	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
4-Nitroaniline	ND	0.12	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Nitrobenzene	ND	0.13	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
4-Nitrophenol	ND	0.13	0.24		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Pentachlorophenol	ND	0.10	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Phenol	ND	0.12	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Pyrene	ND	0.091	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Pyridine	ND	0.12	0.39		mg/Kg	1	11/10/2019 2:32:58 PM	48625
1,2,4-Trichlorobenzene	ND	0.15	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2,4,5-Trichlorophenol	ND	0.13	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
2,4,6-Trichlorophenol	ND	0.10	0.19		mg/Kg	1	11/10/2019 2:32:58 PM	48625
Surr: 2-Fluorophenol	70.5		26.7-85.9		%Rec	1	11/10/2019 2:32:58 PM	48625
Surr: Phenol-d5	73.3		18.5-101		%Rec	1	11/10/2019 2:32:58 PM	48625
Surr: 2,4,6-Tribromophenol	70.7		35.8-85.6		%Rec	1	11/10/2019 2:32:58 PM	48625
Surr: Nitrobenzene-d5	78.3		40.8-95.2		%Rec	1	11/10/2019 2:32:58 PM	48625
Surr: 2-Fluorobiphenyl	76.5		34.7-85.2		%Rec	1	11/10/2019 2:32:58 PM	48625
Surr: 4-Terphenyl-d14	56.1		37.4-91.3		%Rec	1	11/10/2019 2:32:58 PM	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	0.0056	0.0038	0.023	J	mg/Kg	1	11/8/2019 4:44:46 PM	48591
Toluene	ND	0.0044	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Ethylbenzene	ND	0.0027	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Methyl tert-butyl ether (MTBE)	ND	0.011	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2,4-Trimethylbenzene	ND	0.0042	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,3,5-Trimethylbenzene	ND	0.0045	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2-Dichloroethane (EDC)	ND	0.0047	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:20:00 PM
Lab ID: 1910G04-007
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0042	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Naphthalene	ND	0.0093	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1-Methylnaphthalene	ND	0.027	0.19		mg/Kg	1	11/8/2019 4:44:46 PM	48591
2-Methylnaphthalene	ND	0.020	0.19		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Acetone	ND	0.039	0.70		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Bromobenzene	ND	0.0045	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Bromodichloromethane	ND	0.0042	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Bromoform	ND	0.0042	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Bromomethane	ND	0.011	0.14		mg/Kg	1	11/8/2019 4:44:46 PM	48591
2-Butanone	ND	0.054	0.46		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Carbon disulfide	ND	0.015	0.46		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Carbon tetrachloride	ND	0.0044	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Chlorobenzene	ND	0.0060	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Chloroethane	ND	0.0068	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Chloroform	ND	0.0037	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Chloromethane	ND	0.0044	0.14		mg/Kg	1	11/8/2019 4:44:46 PM	48591
2-Chlorotoluene	ND	0.0040	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
4-Chlorotoluene	ND	0.0038	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
cis-1,2-DCE	ND	0.0064	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
cis-1,3-Dichloropropene	ND	0.0039	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2-Dibromo-3-chloropropane	ND	0.0048	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Dibromochloromethane	ND	0.0033	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Dibromomethane	ND	0.0050	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2-Dichlorobenzene	ND	0.0038	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,3-Dichlorobenzene	ND	0.0040	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,4-Dichlorobenzene	ND	0.0039	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Dichlorodifluoromethane	ND	0.011	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,1-Dichloroethane	ND	0.0030	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,1-Dichloroethene	ND	0.019	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2-Dichloropropane	ND	0.0034	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,3-Dichloropropane	ND	0.0050	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
2,2-Dichloropropane	ND	0.015	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,1-Dichloropropene	ND	0.0042	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Hexachlorobutadiene	ND	0.0047	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
2-Hexanone	ND	0.0077	0.46		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Isopropylbenzene	ND	0.0033	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
4-Isopropyltoluene	ND	0.0038	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
4-Methyl-2-pentanone	ND	0.0088	0.46		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Methylene chloride	ND	0.0082	0.14		mg/Kg	1	11/8/2019 4:44:46 PM	48591

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:20:00 PM
Lab ID: 1910G04-007
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0043	0.14		mg/Kg	1	11/8/2019 4:44:46 PM	48591
n-Propylbenzene	ND	0.0037	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
sec-Butylbenzene	ND	0.0052	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Styrene	ND	0.0036	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
tert-Butylbenzene	ND	0.0044	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,1,1,2-Tetrachloroethane	ND	0.0031	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,1,2,2-Tetrachloroethane	ND	0.0047	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Tetrachloroethene (PCE)	ND	0.0037	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
trans-1,2-DCE	ND	0.0043	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
trans-1,3-Dichloropropene	ND	0.0049	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2,3-Trichlorobenzene	ND	0.0041	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2,4-Trichlorobenzene	ND	0.0047	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,1,1-Trichloroethane	ND	0.0042	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,1,2-Trichloroethane	ND	0.0033	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Trichloroethene (TCE)	ND	0.0054	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Trichlorofluoromethane	ND	0.016	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
1,2,3-Trichloropropane	ND	0.0075	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Vinyl chloride	ND	0.0030	0.046		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Xylenes, Total	ND	0.012	0.093		mg/Kg	1	11/8/2019 4:44:46 PM	48591
Surr: Dibromofluoromethane	114		70-130		%Rec	1	11/8/2019 4:44:46 PM	48591
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	11/8/2019 4:44:46 PM	48591
Surr: Toluene-d8	102		70-130		%Rec	1	11/8/2019 4:44:46 PM	48591
Surr: 4-Bromofluorobenzene	82.0		70-130		%Rec	1	11/8/2019 4:44:46 PM	48591

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:30:00 PM
Lab ID: 1910G04-008
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.7	8.7		mg/Kg	1	11/5/2019 7:29:27 PM	48574
Motor Oil Range Organics (MRO)	ND	44	44		mg/Kg	1	11/5/2019 7:29:27 PM	48574
Surr: DNOP	92.0	0	70-130		%Rec	1	11/5/2019 7:29:27 PM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.84	2.8		mg/Kg	1	11/4/2019 11:23:13 PM	A64209
Surr: BFB	101	0	77.4-118		%Rec	1	11/4/2019 11:23:13 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/7/2019 4:05:50 PM	48646
Chloride	ND	7.5	7.5		mg/Kg	5	11/7/2019 4:05:50 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 4:05:50 PM	48646
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 4:05:50 PM	48646
Sulfate	31	7.5	7.5		mg/Kg	5	11/7/2019 4:05:50 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0029	0.0018	0.033	J	mg/Kg	1	11/11/2019 6:26:50 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.76	5.1		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Arsenic	ND	2.9	5.1		mg/Kg	2	11/21/2019 8:22:12 PM	48604
Barium	210	0.048	0.21		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Beryllium	0.91	0.019	0.31		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Cadmium	ND	0.050	0.21		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Chromium	12	0.16	0.62		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Cobalt	6.1	0.22	0.62		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Iron	17000	75	260		mg/Kg	100	11/20/2019 8:36:57 PM	48604
Lead	1.4	0.50	0.51		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Manganese	340	0.043	0.21		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Nickel	15	0.31	1.0		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Selenium	ND	2.5	5.0		mg/Kg	2	11/25/2019 6:52:09 PM	48977
Silver	ND	0.066	0.51		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Vanadium	15	0.14	5.1		mg/Kg	2	11/20/2019 8:35:21 PM	48604
Zinc	16	0.81	5.1		mg/Kg	2	11/20/2019 8:35:21 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Acenaphthylene	ND	0.10	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Aniline	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Anthracene	ND	0.10	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Azobenzene	ND	0.13	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Benz(a)anthracene	ND	0.090	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:30:00 PM
Lab ID: 1910G04-008
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.083	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Benzo(b)fluoranthene	ND	0.083	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Benzo(g,h,i)perylene	ND	0.080	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Benzo(k)fluoranthene	ND	0.085	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Benzoic acid	ND	0.097	0.47		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Bis(2-chloroethyl)ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.13	0.47		mg/Kg	1	11/9/2019 3:39:06 PM	48568
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Butyl benzyl phthalate	ND	0.096	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Carbazole	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
4-Chloro-3-methylphenol	ND	0.14	0.47		mg/Kg	1	11/9/2019 3:39:06 PM	48568
4-Chloroaniline	ND	0.13	0.47		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2-Chloronaphthalene	ND	0.12	0.23		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
4-Chlorophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Chrysene	ND	0.083	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Di-n-butyl phthalate	ND	0.14	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Di-n-octyl phthalate	ND	0.095	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Dibenz(a,h)anthracene	ND	0.085	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Dibenzofuran	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
1,2-Dichlorobenzene	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
1,3-Dichlorobenzene	ND	0.099	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
1,4-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
3,3´-Dichlorobenzidine	ND	0.083	0.23		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Diethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Dimethyl phthalate	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2,4-Dichlorophenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2,4-Dimethylphenol	ND	0.10	0.28		mg/Kg	1	11/9/2019 3:39:06 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.086	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2,4-Dinitrophenol	ND	0.068	0.47		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2,6-Dinitrotoluene	ND	0.12	0.47		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Fluoranthene	ND	0.10	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Fluorene	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:30:00 PM
Lab ID: 1910G04-008
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Hexachloroethane	ND	0.10	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.093	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Isophorone	ND	0.14	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2-Methylphenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
3+4-Methylphenol	ND	0.11	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
N-Nitrosodi-n-propylamine	ND	0.13	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
N-Nitrosodiphenylamine	ND	0.098	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Naphthalene	ND	0.14	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Nitrobenzene	ND	0.13	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
4-Nitrophenol	ND	0.13	0.23		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Pentachlorophenol	ND	0.096	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Phenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Pyrene	ND	0.088	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Pyridine	ND	0.11	0.37		mg/Kg	1	11/9/2019 3:39:06 PM	48568
1,2,4-Trichlorobenzene	ND	0.15	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
2,4,6-Trichlorophenol	ND	0.098	0.19		mg/Kg	1	11/9/2019 3:39:06 PM	48568
Surr: 2-Fluorophenol	48.1		26.7-85.9		%Rec	1	11/9/2019 3:39:06 PM	48568
Surr: Phenol-d5	53.0		18.5-101		%Rec	1	11/9/2019 3:39:06 PM	48568
Surr: 2,4,6-Tribromophenol	58.5		35.8-85.6		%Rec	1	11/9/2019 3:39:06 PM	48568
Surr: Nitrobenzene-d5	56.8		40.8-95.2		%Rec	1	11/9/2019 3:39:06 PM	48568
Surr: 2-Fluorobiphenyl	57.5		34.7-85.2		%Rec	1	11/9/2019 3:39:06 PM	48568
Surr: 4-Terphenyl-d14	53.8		37.4-91.3		%Rec	1	11/9/2019 3:39:06 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0023	0.014		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Toluene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Ethylbenzene	ND	0.0016	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0066	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0025	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0028	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:30:00 PM
Lab ID: 1910G04-008
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0025	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Naphthalene	ND	0.0056	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1-Methylnaphthalene	ND	0.016	0.11		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Acetone	ND	0.023	0.42		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Bromobenzene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Bromodichloromethane	ND	0.0025	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Bromoform	ND	0.0025	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Bromomethane	ND	0.0067	0.083		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
2-Butanone	0.050	0.032	0.28	J	mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Carbon disulfide	ND	0.0092	0.28		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Carbon tetrachloride	ND	0.0026	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Chlorobenzene	ND	0.0036	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Chloroethane	ND	0.0041	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Chloroform	ND	0.0022	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Chloromethane	ND	0.0027	0.083		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
2-Chlorotoluene	ND	0.0024	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
4-Chlorotoluene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
cis-1,2-DCE	ND	0.0038	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
cis-1,3-Dichloropropene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0029	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Dibromochloromethane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Dibromomethane	ND	0.0030	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,3-Dichlorobenzene	ND	0.0024	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,4-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Dichlorodifluoromethane	ND	0.0065	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,1-Dichloroethane	ND	0.0018	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,1-Dichloroethene	ND	0.011	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2-Dichloropropane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,3-Dichloropropane	ND	0.0030	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
2,2-Dichloropropane	ND	0.0090	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,1-Dichloropropene	ND	0.0025	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Hexachlorobutadiene	ND	0.0028	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
2-Hexanone	ND	0.0046	0.28		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Isopropylbenzene	ND	0.0020	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
4-Isopropyltoluene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
4-Methyl-2-pentanone	ND	0.0053	0.28		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Methylene chloride	ND	0.0049	0.083		mg/Kg	1	11/2/2019 7:35:34 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 2:30:00 PM
Lab ID: 1910G04-008
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0026	0.083		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
n-Propylbenzene	ND	0.0022	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
sec-Butylbenzene	ND	0.0031	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Styrene	ND	0.0022	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
tert-Butylbenzene	ND	0.0026	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0019	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0028	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Tetrachloroethene (PCE)	ND	0.0022	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
trans-1,2-DCE	ND	0.0025	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
trans-1,3-Dichloropropene	ND	0.0029	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0024	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0028	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,1,1-Trichloroethane	ND	0.0025	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,1,2-Trichloroethane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Trichloroethene (TCE)	ND	0.0032	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Trichlorofluoromethane	ND	0.0094	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
1,2,3-Trichloropropane	ND	0.0045	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Vinyl chloride	ND	0.0018	0.028		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Xylenes, Total	ND	0.0070	0.056		mg/Kg	1	11/2/2019 7:35:34 AM	B64178
Surr: Dibromofluoromethane	108		70-130		%Rec	1	11/2/2019 7:35:34 AM	B64178
Surr: 1,2-Dichloroethane-d4	90.5		70-130		%Rec	1	11/2/2019 7:35:34 AM	B64178
Surr: Toluene-d8	98.4		70-130		%Rec	1	11/2/2019 7:35:34 AM	B64178
Surr: 4-Bromofluorobenzene	86.1		70-130		%Rec	1	11/2/2019 7:35:34 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP02
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019
Lab ID: 1910G04-009
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.8	9.1		mg/Kg	1	11/5/2019 7:51:39 PM	48574
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	11/5/2019 7:51:39 PM	48574
Surr: DNOP	87.9	0	70-130		%Rec	1	11/5/2019 7:51:39 PM	48574
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.93	3.1		mg/Kg	1	11/4/2019 11:46:16 PM	A64209
Surr: BFB	99.5	0	77.4-118		%Rec	1	11/4/2019 11:46:16 PM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **CJS**	
Fluoride	2.7	1.5	1.5		mg/Kg	5	11/7/2019 4:30:39 PM	48646
Chloride	42	7.5	7.5		mg/Kg	5	11/7/2019 4:30:39 PM	48646
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/7/2019 4:30:39 PM	48646
Nitrogen, Nitrate (As N)	31	1.5	1.5		mg/Kg	5	11/7/2019 4:30:39 PM	48646
Sulfate	250	7.5	7.5		mg/Kg	5	11/7/2019 4:30:39 PM	48646
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0069	0.0018	0.033	J	mg/Kg	1	11/11/2019 6:28:54 PM	48711
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.72	4.9		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Arsenic	ND	2.8	4.9		mg/Kg	2	11/21/2019 8:23:37 PM	48626
Barium	360	0.045	0.20		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Beryllium	0.96	0.018	0.29		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Cadmium	ND	0.047	0.20		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Chromium	8.0	0.16	0.59		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Cobalt	4.0	0.21	0.59		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Iron	13000	71	240		mg/Kg	100	11/20/2019 8:45:53 PM	48626
Lead	3.4	0.47	0.49		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Manganese	160	0.040	0.20		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Nickel	8.2	0.29	0.98		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Selenium	ND	2.5	4.9		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Silver	ND	0.063	0.49		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Vanadium	16	0.13	4.9		mg/Kg	2	11/20/2019 8:44:16 PM	48626
Zinc	13	0.77	4.9		mg/Kg	2	11/20/2019 8:44:16 PM	48626
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Acenaphthylene	ND	0.21	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Aniline	ND	0.24	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Anthracene	ND	0.20	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Azobenzene	ND	0.26	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Benz(a)anthracene	ND	0.18	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP02
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019
Lab ID: 1910G04-009
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.17	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Benzo(b)fluoranthene	ND	0.17	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Benzo(g,h,i)perylene	ND	0.16	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Benzo(k)fluoranthene	ND	0.17	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Benzoic acid	ND	0.19	0.94		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Benzyl alcohol	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Bis(2-chloroethoxy)methane	ND	0.28	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Bis(2-chloroethyl)ether	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.21	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.27	0.94		mg/Kg	1	11/9/2019 4:07:58 PM	48568
4-Bromophenyl phenyl ether	ND	0.22	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Butyl benzyl phthalate	ND	0.19	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Carbazole	ND	0.22	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
4-Chloro-3-methylphenol	ND	0.29	0.94		mg/Kg	1	11/9/2019 4:07:58 PM	48568
4-Chloroaniline	ND	0.27	0.94		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2-Chloronaphthalene	ND	0.23	0.47		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2-Chlorophenol	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
4-Chlorophenyl phenyl ether	ND	0.21	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Chrysene	ND	0.17	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Di-n-butyl phthalate	ND	0.28	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Di-n-octyl phthalate	ND	0.19	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Dibenz(a,h)anthracene	ND	0.17	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Dibenzofuran	ND	0.25	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
1,2-Dichlorobenzene	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
1,3-Dichlorobenzene	ND	0.20	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
1,4-Dichlorobenzene	ND	0.20	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
3,3´-Dichlorobenzidine	ND	0.17	0.47		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Diethyl phthalate	ND	0.27	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Dimethyl phthalate	ND	0.25	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2,4-Dichlorophenol	ND	0.22	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2,4-Dimethylphenol	ND	0.21	0.57		mg/Kg	1	11/9/2019 4:07:58 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.17	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2,4-Dinitrophenol	ND	0.14	0.94		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2,4-Dinitrotoluene	ND	0.22	0.94		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2,6-Dinitrotoluene	ND	0.25	0.94		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Fluoranthene	ND	0.21	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Fluorene	ND	0.21	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Hexachlorobenzene	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Hexachlorobutadiene	ND	0.26	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP02
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019
Lab ID: 1910G04-009
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.22	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Hexachloroethane	ND	0.21	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.19	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Isophorone	ND	0.28	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
1-Methylnaphthalene	ND	0.28	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2-Methylnaphthalene	ND	0.27	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2-Methylphenol	ND	0.22	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
3+4-Methylphenol	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
N-Nitrosodi-n-propylamine	ND	0.27	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
N-Nitrosodiphenylamine	ND	0.20	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Naphthalene	ND	0.28	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2-Nitroaniline	ND	0.27	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
3-Nitroaniline	ND	0.26	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
4-Nitroaniline	ND	0.24	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Nitrobenzene	ND	0.26	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2-Nitrophenol	ND	0.26	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
4-Nitrophenol	ND	0.26	0.47		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Pentachlorophenol	ND	0.19	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Phenanthrene	ND	0.20	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Phenol	ND	0.23	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Pyrene	ND	0.18	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Pyridine	ND	0.23	0.75		mg/Kg	1	11/9/2019 4:07:58 PM	48568
1,2,4-Trichlorobenzene	ND	0.29	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2,4,5-Trichlorophenol	ND	0.24	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
2,4,6-Trichlorophenol	ND	0.20	0.38		mg/Kg	1	11/9/2019 4:07:58 PM	48568
Surr: 2-Fluorophenol	67.7		26.7-85.9		%Rec	1	11/9/2019 4:07:58 PM	48568
Surr: Phenol-d5	74.7		18.5-101		%Rec	1	11/9/2019 4:07:58 PM	48568
Surr: 2,4,6-Tribromophenol	76.9		35.8-85.6		%Rec	1	11/9/2019 4:07:58 PM	48568
Surr: Nitrobenzene-d5	76.5		40.8-95.2		%Rec	1	11/9/2019 4:07:58 PM	48568
Surr: 2-Fluorobiphenyl	78.3		34.7-85.2		%Rec	1	11/9/2019 4:07:58 PM	48568
Surr: 4-Terphenyl-d14	67.6		37.4-91.3		%Rec	1	11/9/2019 4:07:58 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0025	0.015		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Toluene	ND	0.0029	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Ethylbenzene	ND	0.0018	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0073	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0028	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0030	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0031	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP02
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019
Lab ID: 1910G04-009
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0028	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Naphthalene	ND	0.0061	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1-Methylnaphthalene	ND	0.018	0.12		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Acetone	ND	0.025	0.46		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Bromobenzene	ND	0.0029	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Bromodichloromethane	ND	0.0028	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Bromoform	ND	0.0028	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Bromomethane	ND	0.0074	0.092		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
2-Butanone	0.039	0.035	0.31	J	mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Carbon disulfide	ND	0.010	0.31		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Carbon tetrachloride	ND	0.0029	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Chlorobenzene	ND	0.0039	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Chloroethane	ND	0.0045	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Chloroform	ND	0.0025	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Chloromethane	ND	0.0029	0.092		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
2-Chlorotoluene	ND	0.0027	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
4-Chlorotoluene	ND	0.0025	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
cis-1,2-DCE	ND	0.0042	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
cis-1,3-Dichloropropene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0031	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Dibromochloromethane	ND	0.0022	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Dibromomethane	ND	0.0033	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2-Dichlorobenzene	ND	0.0025	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,3-Dichlorobenzene	ND	0.0027	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,4-Dichlorobenzene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Dichlorodifluoromethane	ND	0.0071	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,1-Dichloroethane	ND	0.0020	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,1-Dichloroethene	ND	0.012	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2-Dichloropropane	ND	0.0022	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,3-Dichloropropane	ND	0.0033	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
2,2-Dichloropropane	ND	0.010	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,1-Dichloropropene	ND	0.0028	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Hexachlorobutadiene	ND	0.0031	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
2-Hexanone	ND	0.0051	0.31		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Isopropylbenzene	ND	0.0022	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
4-Isopropyltoluene	ND	0.0025	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
4-Methyl-2-pentanone	ND	0.0058	0.31		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Methylene chloride	ND	0.0054	0.092		mg/Kg	1	11/2/2019 8:04:12 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP02
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019
Lab ID: 1910G04-009
Matrix: SOIL
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0029	0.092		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
n-Propylbenzene	ND	0.0024	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
sec-Butylbenzene	ND	0.0034	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Styrene	ND	0.0024	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
tert-Butylbenzene	ND	0.0029	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0021	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0031	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Tetrachloroethene (PCE)	ND	0.0024	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
trans-1,2-DCE	ND	0.0028	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
trans-1,3-Dichloropropene	ND	0.0032	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0027	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0031	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,1,1-Trichloroethane	ND	0.0028	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,1,2-Trichloroethane	ND	0.0022	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Trichloroethene (TCE)	ND	0.0035	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Trichlorofluoromethane	ND	0.010	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
1,2,3-Trichloropropane	ND	0.0050	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Vinyl chloride	ND	0.0020	0.031		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Xylenes, Total	ND	0.0077	0.061		mg/Kg	1	11/2/2019 8:04:12 AM	B64178
Surr: Dibromofluoromethane	107		70-130		%Rec	1	11/2/2019 8:04:12 AM	B64178
Surr: 1,2-Dichloroethane-d4	89.4		70-130		%Rec	1	11/2/2019 8:04:12 AM	B64178
Surr: Toluene-d8	99.4		70-130		%Rec	1	11/2/2019 8:04:12 AM	B64178
Surr: 4-Bromofluorobenzene	87.9		70-130		%Rec	1	11/2/2019 8:04:12 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: MeOH Blank
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019
Lab ID: 1910G04-010
Matrix: MEOH BLAN
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0041	0.025		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Toluene	ND	0.0048	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Ethylbenzene	ND	0.0029	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.012	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0046	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0048	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0051	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2-Dibromoethane (EDB)	ND	0.0046	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Naphthalene	ND	0.010	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1-Methylnaphthalene	ND	0.029	0.20		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
2-Methylnaphthalene	ND	0.022	0.20		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Acetone	ND	0.041	0.75		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Bromobenzene	ND	0.0048	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Bromodichloromethane	ND	0.0046	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Bromoform	ND	0.0045	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Bromomethane	ND	0.012	0.15		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
2-Butanone	0.073	0.058	0.50	J	mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Carbon disulfide	ND	0.017	0.50		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Carbon tetrachloride	ND	0.0047	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Chlorobenzene	ND	0.0064	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Chloroethane	ND	0.0074	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Chloroform	ND	0.0040	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Chloromethane	ND	0.0048	0.15		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
2-Chlorotoluene	ND	0.0044	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
4-Chlorotoluene	ND	0.0041	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
cis-1,2-DCE	ND	0.0068	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
cis-1,3-Dichloropropene	ND	0.0042	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0051	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Dibromochloromethane	ND	0.0035	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Dibromomethane	ND	0.0054	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,3-Dichlorobenzene	ND	0.0043	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,4-Dichlorobenzene	ND	0.0042	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Dichlorodifluoromethane	ND	0.012	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,1-Dichloroethane	ND	0.0032	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2-Dichloropropane	ND	0.0036	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,3-Dichloropropane	ND	0.0054	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
2,2-Dichloropropane	ND	0.016	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: MeOH Blank
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019
Lab ID: 1910G04-010
Matrix: MEOH BLAN
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.0046	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Hexachlorobutadiene	ND	0.0051	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
2-Hexanone	ND	0.0083	0.50		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Isopropylbenzene	ND	0.0036	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
4-Isopropyltoluene	ND	0.0041	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
4-Methyl-2-pentanone	ND	0.0094	0.50		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Methylene chloride	0.016	0.0088	0.15	J	mg/Kg	1	11/2/2019 8:32:48 AM	B64178
n-Butylbenzene	ND	0.0047	0.15		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
n-Propylbenzene	ND	0.0040	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
sec-Butylbenzene	ND	0.0056	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Styrene	ND	0.0039	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
tert-Butylbenzene	ND	0.0047	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0034	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0051	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
trans-1,2-DCE	ND	0.0046	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
trans-1,3-Dichloropropene	ND	0.0053	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0044	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0051	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,1,1-Trichloroethane	ND	0.0045	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,1,2-Trichloroethane	ND	0.0035	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Trichloroethene (TCE)	ND	0.0058	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Trichlorofluoromethane	ND	0.017	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
1,2,3-Trichloropropane	ND	0.0081	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Vinyl chloride	ND	0.0033	0.050		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Xylenes, Total	ND	0.013	0.10		mg/Kg	1	11/2/2019 8:32:48 AM	B64178
Surr: Dibromofluoromethane	110		70-130		%Rec	1	11/2/2019 8:32:48 AM	B64178
Surr: 1,2-Dichloroethane-d4	94.5		70-130		%Rec	1	11/2/2019 8:32:48 AM	B64178
Surr: Toluene-d8	101		70-130		%Rec	1	11/2/2019 8:32:48 AM	B64178
Surr: 4-Bromofluorobenzene	87.3		70-130		%Rec	1	11/2/2019 8:32:48 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103019
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 3:30:00 PM
Lab ID: 1910G04-011
Matrix: AQUEOUS
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/5/2019 8:06:34 PM	48575
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/5/2019 8:06:34 PM	48575
Surr: DNOP	107	0	81.5-152		%Rec	1	11/5/2019 8:06:34 PM	48575
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	0.029	0.10		mg/L	1	11/1/2019 9:45:14 PM	R64187
Chloride	0.28	0.25	0.50	J	mg/L	1	11/1/2019 9:45:14 PM	R64187
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	10/31/2019 10:56:24 P	A64146
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	10/31/2019 10:56:24 P	A64146
Sulfate	1.2	0.25	0.50		mg/L	1	11/1/2019 9:45:14 PM	R64187
EPA METHOD 7470: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/13/2019 11:51:41 A	48730
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **rde**	
Antimony	ND	0.0081	0.050		mg/L	1	11/25/2019 1:02:46 PM	48560
Arsenic	ND	0.015	0.020		mg/L	1	11/25/2019 4:09:09 PM	48560
Barium	ND	0.0012	0.020		mg/L	1	11/13/2019 8:21:49 PM	48560
Beryllium	ND	0.00025	0.0030		mg/L	1	11/13/2019 8:21:49 PM	48560
Cadmium	ND	0.00055	0.0020		mg/L	1	11/13/2019 8:21:49 PM	48560
Chromium	ND	0.00086	0.0060		mg/L	1	11/13/2019 8:21:49 PM	48560
Cobalt	ND	0.0012	0.0060		mg/L	1	11/14/2019 5:42:03 PM	48560
Iron	0.013	0.0093	0.020	J	mg/L	1	11/13/2019 8:21:49 PM	48560
Lead	0.0055	0.0035	0.0050		mg/L	1	11/13/2019 8:21:49 PM	48560
Manganese	ND	0.00041	0.0020		mg/L	1	11/25/2019 1:02:46 PM	48560
Nickel	ND	0.0028	0.010		mg/L	1	11/13/2019 8:21:49 PM	48560
Selenium	ND	0.035	0.050		mg/L	1	11/13/2019 8:21:49 PM	48560
Silver	ND	0.00055	0.0050		mg/L	1	11/13/2019 8:21:49 PM	48560
Vanadium	ND	0.00086	0.050		mg/L	1	11/13/2019 8:21:49 PM	48560
Zinc	ND	0.011	0.020		mg/L	1	11/13/2019 8:21:49 PM	48560
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Acenaphthylene	ND	2.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Aniline	ND	3.6	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Anthracene	ND	2.7	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Azobenzene	ND	3.3	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Benz(a)anthracene	ND	3.6	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Benzo(a)pyrene	ND	3.5	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	11/8/2019 12:25:22 PM	48585

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103019
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 3:30:00 PM
Lab ID: 1910G04-011
Matrix: AQUEOUS
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Benzoic acid	15	11	20	J	µg/L	1	11/8/2019 12:25:22 PM	48585
Benzyl alcohol	ND	2.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	11/8/2019 12:25:22 PM	48585
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Carbazole	ND	2.9	10		µg/L	1	11/8/2019 12:25:22 PM	48585
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
4-Chloroaniline	ND	2.3	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2-Chloronaphthalene	ND	3.1	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2-Chlorophenol	ND	2.7	10		µg/L	1	11/8/2019 12:25:22 PM	48585
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Chrysene	ND	2.8	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Dibenzofuran	ND	3.2	10		µg/L	1	11/8/2019 12:25:22 PM	48585
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	11/8/2019 12:25:22 PM	48585
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	11/8/2019 12:25:22 PM	48585
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
3,3´-Dichlorobenzidine	ND	2.8	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Diethyl phthalate	ND	2.9	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Dimethyl phthalate	ND	3.2	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	11/8/2019 12:25:22 PM	48585
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	11/8/2019 12:25:22 PM	48585
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	11/8/2019 12:25:22 PM	48585
2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Fluoranthene	ND	2.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Fluorene	ND	2.9	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Hexachlorobenzene	ND	3.1	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Hexachlorobutadiene	ND	4.7	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Hexachloroethane	ND	4.8	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	11/8/2019 12:25:22 PM	48585

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103019
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 3:30:00 PM
Lab ID: 1910G04-011
Matrix: AQUEOUS
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Isophorone	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
1-Methylnaphthalene	ND	3.1	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2-Methylnaphthalene	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2-Methylphenol	ND	2.9	10		µg/L	1	11/8/2019 12:25:22 PM	48585
3+4-Methylphenol	ND	3.6	10		µg/L	1	11/8/2019 12:25:22 PM	48585
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	11/8/2019 12:25:22 PM	48585
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Naphthalene	ND	4.1	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2-Nitroaniline	ND	3.2	10		µg/L	1	11/8/2019 12:25:22 PM	48585
3-Nitroaniline	ND	3.2	10		µg/L	1	11/8/2019 12:25:22 PM	48585
4-Nitroaniline	ND	2.7	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Nitrobenzene	ND	2.8	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2-Nitrophenol	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
4-Nitrophenol	ND	7.6	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Pentachlorophenol	ND	2.7	20		µg/L	1	11/8/2019 12:25:22 PM	48585
Phenanthrene	ND	2.8	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Phenol	ND	8.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Pyrene	ND	2.5	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Pyridine	ND	9.6	10		µg/L	1	11/8/2019 12:25:22 PM	48585
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	11/8/2019 12:25:22 PM	48585
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	11/8/2019 12:25:22 PM	48585
Surr: 2-Fluorophenol	58.9	0	15-101		%Rec	1	11/8/2019 12:25:22 PM	48585
Surr: Phenol-d5	44.8	0	15-84.6		%Rec	1	11/8/2019 12:25:22 PM	48585
Surr: 2,4,6-Tribromophenol	79.3	0	27.8-112		%Rec	1	11/8/2019 12:25:22 PM	48585
Surr: Nitrobenzene-d5	78.7	0	33-113		%Rec	1	11/8/2019 12:25:22 PM	48585
Surr: 2-Fluorobiphenyl	82.0	0	26.6-107		%Rec	1	11/8/2019 12:25:22 PM	48585
Surr: 4-Terphenyl-d14	79.6	0	18.7-148		%Rec	1	11/8/2019 12:25:22 PM	48585
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.17	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Toluene	ND	0.35	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Naphthalene	ND	0.28	2.0		µg/L	1	11/4/2019 10:10:06 PM	R64230

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103019
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 3:30:00 PM
Lab ID: 1910G04-011
Matrix: AQUEOUS
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Acetone	ND	1.2	10		µg/L	1	11/4/2019 10:10:06 PM	R64230
Bromobenzene	ND	0.24	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Bromoform	ND	0.29	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Bromomethane	ND	0.27	3.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
2-Butanone	ND	2.1	10		µg/L	1	11/4/2019 10:10:06 PM	R64230
Carbon disulfide	ND	0.45	10		µg/L	1	11/4/2019 10:10:06 PM	R64230
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Chloroethane	ND	0.18	2.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Chloroform	ND	0.12	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Chloromethane	ND	0.32	3.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Dibromomethane	ND	0.21	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
2-Hexanone	ND	1.5	10		µg/L	1	11/4/2019 10:10:06 PM	R64230
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/4/2019 10:10:06 PM	R64230
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103019
Project: Sanitary Sewer Lagoon
Collection Date: 10/30/2019 3:30:00 PM
Lab ID: 1910G04-011
Matrix: AQUEOUS
Received Date: 10/31/2019 1:22:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Styrene	ND	0.19	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/4/2019 10:10:06 PM	R64230
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/4/2019 10:10:06 PM	R64230
Surr: 1,2-Dichloroethane-d4	97.5	0	70-130		%Rec	1	11/4/2019 10:10:06 PM	R64230
Surr: 4-Bromofluorobenzene	91.3	0	70-130		%Rec	1	11/4/2019 10:10:06 PM	R64230
Surr: Dibromofluoromethane	107	0	70-130		%Rec	1	11/4/2019 10:10:06 PM	R64230
Surr: Toluene-d8	98.8	0	70-130		%Rec	1	11/4/2019 10:10:06 PM	R64230
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.019	0.050		mg/L	1	11/4/2019 10:10:06 PM	G64230
Surr: BFB	92.5	0	70-130		%Rec	1	11/4/2019 10:10:06 PM	G64230

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

Qualifiers:

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 12, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1156467

Samples Received: 11/02/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 5

Sr: Sample Results 6

1910G04-001B SL-4 (0-0.5') L1156467-01 6

1910G04-002B SL-4 (2-2.5') L1156467-02 7

1910G04-003B SL-4 (6-8') L1156467-03 8

1910G04-004B SL-4 (14-16') L1156467-04 9

1910G04-005B SL-5 (0-0.5') L1156467-05 10

1910G04-006B SL-5 (2-2.5') L1156467-06 11

1910G04-007B SL-5 (6-8') L1156467-07 12

1910G04-008B SL-5 (12-14') L1156467-08 13

1910G04-009B DUP02 L1156467-09 14

1910G04-011F EB103019 L1156467-10 15

1910G04-011G EB103019 L1156467-11 16

Qc: Quality Control Summary 17

Wet Chemistry by Method 4500CN E-2011 17

Wet Chemistry by Method 7199 18

Wet Chemistry by Method 9012B 21

Gl: Glossary of Terms 23

Al: Accreditations & Locations 24

Sc: Sample Chain of Custody 25

1910G04-001B SL-4 (0-0.5') L1156467-01 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:20	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 16:18	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:35	JER	Mt. Juliet, TN

1910G04-002B SL-4 (2-2.5') L1156467-02 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:30	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 16:23	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:37	JER	Mt. Juliet, TN

1910G04-003B SL-4 (6-8') L1156467-03 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:40	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 16:28	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:40	JER	Mt. Juliet, TN

1910G04-004B SL-4 (14-16') L1156467-04 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 11:50	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374153	1	11/07/19 02:18	11/07/19 16:33	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:41	JER	Mt. Juliet, TN

1910G04-005B SL-5 (0-0.5') L1156467-05 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 12:40	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 14:24	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:42	JER	Mt. Juliet, TN

1910G04-006B SL-5 (2-2.5') L1156467-06 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 14:00	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 14:37	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:43	JER	Mt. Juliet, TN

1910G04-007B SL-5 (6-8') L1156467-07 Solid

Collected by	Collected date/time	Received date/time
	10/30/19 14:20	11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 15:03	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1375561	1	11/06/19 09:07	11/06/19 18:44	JER	Mt. Juliet, TN

1910G04-008B SL-5 (12-14') L1156467-08 Solid

Collected by | Collected date/time 10/30/19 14:30 | Received date/time 11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 15:19	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:26	JER	Mt. Juliet, TN

1910G04-009B DUP02 L1156467-09 Solid

Collected by | Collected date/time 10/30/19 00:00 | Received date/time 11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374154	1	11/11/19 11:10	11/11/19 15:24	GB	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:27	JER	Mt. Juliet, TN

1910G04-011F EB103019 L1156467-10 GW

Collected by | Collected date/time 10/30/19 15:30 | Received date/time 11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1374139	1	11/06/19 22:13	11/06/19 22:13	GB	Mt. Juliet, TN

1910G04-011G EB103019 L1156467-11 GW

Collected by | Collected date/time 10/30/19 15:30 | Received date/time 11/02/19 09:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1378731	1	11/11/19 15:23	11/11/19 19:24	JER	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/07/2019 16:18	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.213	J P1	0.0390	0.250	1	11/06/2019 18:35	WG1375561

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	11/07/2019 16:23	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0557	J	0.0390	0.250	1	11/06/2019 18:37	WG1375561

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/07/2019 16:28	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/06/2019 18:40	WG1375561

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/07/2019 16:33	WG1374153

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/06/2019 18:41	WG1375561

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 14:24	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.168	J	0.0390	0.250	1	11/06/2019 18:42	WG1375561

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 14:37	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.0397	J	0.0390	0.250	1	11/06/2019 18:43	WG1375561

Wet Chemistry by Method 7199

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 15:03	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	U		0.0390	0.250	1	11/06/2019 18:44	WG1375561

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 15:19	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:26	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		0.255	1.00	1	11/11/2019 15:24	WG1374154

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:27	WG1376270

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/06/2019 22:13	WG1374139

Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Cyanide	U		0.00180	0.00500	1	11/11/2019 19:24	WG1378731



Method Blank (MB)

(MB) R3470776-1 11/11/19 19:04

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

L1156459-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156459-01 11/11/19 19:22 • (DUP) R3470776-6 11/11/19 19:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3470776-2 11/11/19 19:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	0.100	0.0923	92.3	85.0-115	

L1156427-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156427-04 11/11/19 19:18 • (MS) R3470776-4 11/11/19 19:19 • (MSD) R3470776-5 11/11/19 19:20

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 %
Cyanide	0.100	ND	0.0910	0.0779	91.0	77.9	1	75.0-125			15.5	20

L1156467-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156467-11 11/11/19 19:24 • (MS) R3470776-7 11/11/19 19:25 • (MSD) R3470776-8 11/11/19 19:28

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 %
Cyanide	0.100	U	0.0971	0.0959	97.1	95.9	1	75.0-125			1.24	20

Method Blank (MB)

(MB) R3469600-1 11/06/19 19:18

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1156459-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156459-01 11/06/19 21:56 • (DUP) R3469600-3 11/06/19 22:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	0.000	1	0.000		20

L1157549-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157549-01 11/07/19 00:55 • (DUP) R3469600-5 11/07/19 01:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.00487	0.00485	1	0.340		20

Laboratory Control Sample (LCS)

(LCS) R3469600-2 11/06/19 19:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	0.00200	0.00189	94.5	90.0-110	

L1156467-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1156467-10 11/06/19 22:13 • (MS) R3469600-4 11/06/19 22:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	0.0500	U	0.0498	99.7	1	90.0-110	

L1157549-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157549-02 11/07/19 01:10 • (MS) R3469600-6 11/07/19 01:17 • (MSD) R3469600-7 11/07/19 01:25

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 %
Hexavalent Chromium	0.0500	0.00392	0.0532	0.0533	98.6	98.7	1	90.0-110			0.104	20

Method Blank (MB)

(MB) R3469578-1 11/07/19 13:13

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L1156501-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1156501-04 11/07/19 14:18 • (DUP) R3469578-3 11/07/19 14:24

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

L1156084-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156084-01 11/07/19 15:21 • (DUP) R3469578-4 11/07/19 15:26

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3469578-2 11/07/19 13:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	10.1	101	80.0-120	

L1156084-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156084-02 11/07/19 15:31 • (MS) R3469578-5 11/07/19 15:36 • (MSD) R3469578-6 11/07/19 15:41

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 %
Hexavalent Chromium	20.0	ND	13.8	13.7	69.1	68.5	1	75.0-125	J6	J6	0.880	20

L1156084-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L1156084-02 11/07/19 15:31 • (MS) R3469578-7 11/07/19 15:57

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	720	ND	624	86.7	50	75.0-125	

Method Blank (MB)

(MB) R3470755-1 11/11/19 14:01

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L1156467-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1156467-05 11/11/19 14:24 • (DUP) R3470755-3 11/11/19 14:32

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

L1157158-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1157158-07 11/11/19 16:52 • (DUP) R3470755-8 11/11/19 16:57

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3470755-2 11/11/19 14:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	10.0	9.97	99.7	80.0-120	

L1156467-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156467-06 11/11/19 14:37 • (MS) R3470755-4 11/11/19 14:42 • (MSD) R3470755-5 11/11/19 14:47

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 %
Hexavalent Chromium	20.0	U	18.2	18.4	91.0	91.9	1	75.0-125			1.05	20

L1156467-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L1156467-06 11/11/19 14:37 • (MS) R3470755-6 11/11/19 14:53

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	753	U	732	97.3	50	75.0-125	

Method Blank (MB)

(MB) R3469205-1 11/06/19 18:11

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1156084-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156084-01 11/06/19 18:23 • (DUP) R3469205-3 11/06/19 18:24

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	0.609	0.881	1	36.4	P1	20

L1156467-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156467-01 11/06/19 18:35 • (DUP) R3469205-6 11/06/19 18:36

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	0.213	0.285	1	28.7	P1	20

Laboratory Control Sample (LCS)

(LCS) R3469205-2 11/06/19 18:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.46	98.6	50.0-150	

L1156084-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156084-02 11/06/19 18:25 • (MS) R3469205-4 11/06/19 18:26 • (MSD) R3469205-5 11/06/19 18:27

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 %
Cyanide	1.67	ND	1.19	1.27	71.4	76.4	1	75.0-125	J6		6.71	20

L1156467-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156467-02 11/06/19 18:37 • (MS) R3469205-7 11/06/19 18:38 • (MSD) R3469205-8 11/06/19 18:39

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 %
Cyanide	1.67	0.0557	1.35	1.39	77.6	80.3	1	75.0-125			3.29	20

Method Blank (MB)

(MB) R3469670-1 11/07/19 17:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1155811-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1155811-02 11/07/19 17:23 • (DUP) R3469670-3 11/07/19 17:24

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.0785	1	0.000		20

L1157218-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157218-01 11/07/19 17:50 • (DUP) R3469670-8 11/07/19 17:51

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3469670-2 11/07/19 17:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.58	103	50.0-150	

L1156475-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156475-03 11/07/19 17:32 • (MS) R3469670-4 11/07/19 17:33 • (MSD) R3469670-5 11/07/19 17:34

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 %
Cyanide	1.67	U	1.42	1.47	85.0	88.1	1	75.0-125			3.52	20

L1156476-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156476-01 11/07/19 17:44 • (MS) R3469670-6 11/07/19 17:45 • (MSD) R3469670-7 11/07/19 17:47

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 %
Cyanide	1.67	ND	1.47	0.0905	88.0	5.43	1	75.0-125		J3 J6	177	20

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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.
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.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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

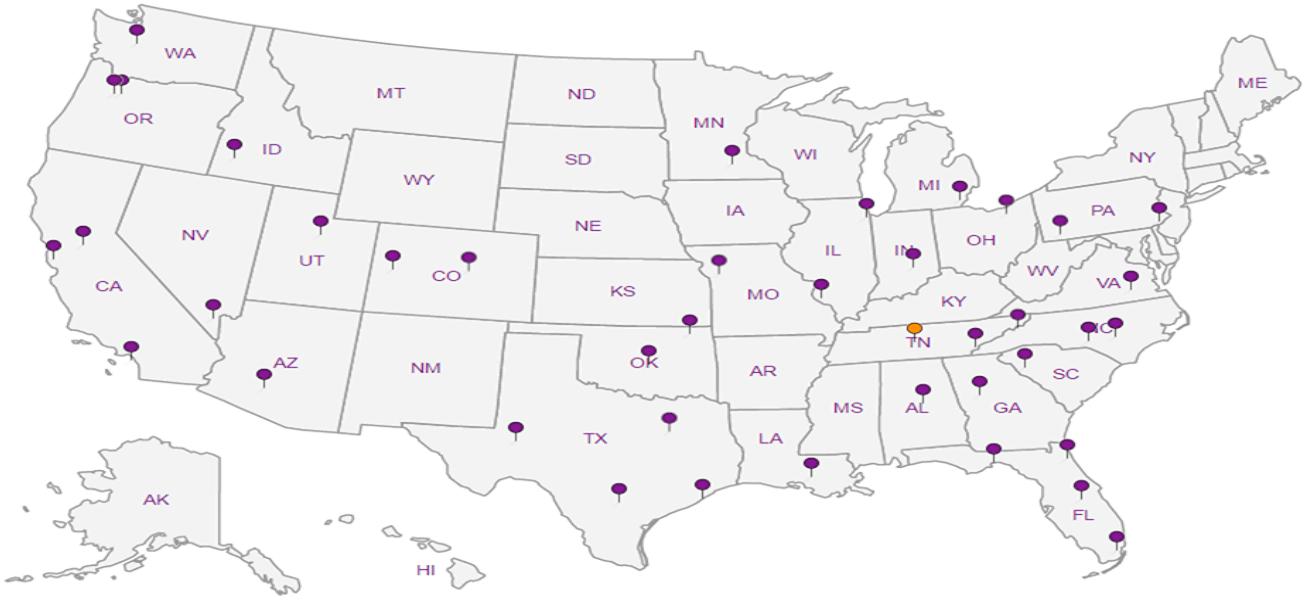
Third Party Federal Accreditations

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.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

1098

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

SUB CONTRATOR:	**ESC PACE**	COMPANY: **ESC PACE**	PHONE: **(800) 767-5859**	FAX: **(615) 758-5859**	
ADDRESS:	**12065 Lebanon Rd**		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	**Mt. Juliet, TN 37122**				

L1156467

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	1910G04-001B	SL-4 (0-0.5')	4OZGU	Soil	10/30/2019 11:20:00 AM	1	Lv. 4 Total CN and Cr6 J and MDL	-01
2	1910G04-002B	SL-4 (2-2.5')	4OZGU	Soil	10/30/2019 11:30:00 AM	1	Lv. 4 Total CN and Cr6	-02
3	1910G04-003B	SL-4 (6-8')	4OZGU	Soil	10/30/2019 11:40:00 AM	1	Lv. 4 Total CN and Cr6	-03
4	1910G04-004B	SL-4 (14-16')	4OZGU	Soil	10/30/2019 11:50:00 AM	1	Lv. 4 Total CN and Cr6	-04
5	1910G04-005B	SL-5 (0-0.5')	4OZGU	Soil	10/30/2019 12:40:00 PM	1	Lv. 4 Total CN and Cr6	-05
6	1910G04-006B	SL-5 (2-2.5')	4OZGU	Soil	10/30/2019 2:00:00 PM	1	Lv. 4 Total CN and Cr6	-06
7	1910G04-007B	SL-5 (6-8')	4OZGU	Soil	10/30/2019 2:20:00 PM	1	Lv. 4 Total CN and Cr6	-07
8	1910G04-008B	SL-5 (12-14')	4OZGU	Soil	10/30/2019 2:30:00 PM	1	Lv. 4 Total CN and Cr6	-08
9	1910G04-009B	DUP02	4OZGU	Soil	10/30/2019	1	Lv. 4 Total CN and Cr6	-09
10	1910G04-011F	EB103019	120mL	Aqueous	10/30/2019 3:30:00 PM	1	Lv.4 Cr6 J and MDL	-10
11	1910G04-011G	EB103019	500AMBHDP E-NAOH	Aqueous	10/30/2019 3:30:00 PM	1	Lv.4 Total CN for GW J and MDL	-11

7/2

28 10/31 19

SPECIAL INSTRUCTIONS / COMMENTS:

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

4516 1664 4599

Relinquished By:	Date: 10/31/2019	Time: 3:27 PM	Received By:	Date: 11-2-19	Time: 0915
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

Cust

FOR LAB USE ONLY

Temp of samples 2.5 -1- 2.4 °C Attempt to Cool ? _____

RAD SCREEN: <0.5 mR/hr

Comments: _____

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	L1156967	
Cooler Received/Opened On: 11/02/19 Temperature:	2.4	
Received By: Paul Minnich		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48646**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **48646**	RunNo: **64309**							
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201762**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: **LCS-48646**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **48646**	RunNo: **64309**							
Prep Date: **11/7/2019**	Analysis Date: **11/7/2019**	SeqNo: **2201763**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	109	90	110			
Chloride	15	1.5	15.00	0	97.1	90	110			
Nitrogen, Nitrite (As N)	2.8	0.30	3.000	0	94.2	90	110			
Nitrogen, Nitrate (As N)	7.6	0.30	7.500	0	102	90	110			
Sulfate	29	1.5	30.00	0	96.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A64146**	RunNo: **64146**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194961** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A64146**	RunNo: **64146**
Prep Date:	Analysis Date: **10/31/2019**	SeqNo: **2194962** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	97.1	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	105	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64187**	RunNo: **64187**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196361** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64187**	RunNo: **64187**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196362** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	105	90	110			
Chloride	4.7	0.50	5.000	0	94.5	90	110			
Sulfate	9.5	0.50	10.00	0	95.5	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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48575**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **LCSW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198351**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.40	2.500	0	95.2	82	138			
Surr: DNOP	0.23		0.2500		91.6	81.5	152			

Sample ID: **MB-48575**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **PBW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198352**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.51		0.5000		102	81.5	152			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48574**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **48574**	RunNo: **64223**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2197824**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.8	63.9	124			
Surr: DNOP	4.2		5.000		83.4	70	130			

Sample ID: **MB-48574**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **48574**	RunNo: **64223**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2197825**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.1		10.00		91.3	70	130			

Sample ID: **LCS-48590**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **LCSS**	Batch ID: **48590**	RunNo: **64266**							
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200931**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	101	63.9	124			
Surr: DNOP	4.8		5.000		96.1	70	130			

Sample ID: **MB-48590**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**							
Client ID: **PBS**	Batch ID: **48590**	RunNo: **64266**							
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200932**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **RB-II**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **A64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197112** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.2	77.4	118			

Sample ID: **2.5UG GRO LCS-II**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **A64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197113** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.2	80	120			
Surr: BFB	1100		1000		112	77.4	118			

Sample ID: **1910G04-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SL-4 (0-0.5')**	Batch ID: **A64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197115** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	17	3.5	17.58	0	94.5	69.1	142			
Surr: BFB	750		703.2		106	77.4	118			

Sample ID: **1910G04-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SL-4 (0-0.5')**	Batch ID: **A64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197116** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	16	3.5	17.58	0	91.7	69.1	142	3.01	20	
Surr: BFB	750		703.2		107	77.4	118	0	0	

Sample ID: **MB-48591**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **48591**	RunNo: **64278**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199915** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	900		1000		89.8	77.4	118			

Sample ID: **LCS-48591**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **48591**	RunNo: **64278**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199916** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48591**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **48591**	RunNo: **64278**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199916** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	86.5	80	120			
Surr: BFB	1000		1000		102	77.4	118			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196117** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196117** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.55		0.5000		109	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.0	70	130			
Surr: Toluene-d8	0.53		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.0	70	130			

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196118** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	93.9	68	135			
Toluene	0.96	0.050	1.000	0	96.2	70	130			
Chlorobenzene	0.95	0.050	1.000	0	95.2	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196118** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.89	0.050	1.000	0	89.5	51.1	139			
Trichloroethene (TCE)	0.86	0.050	1.000	0	86.4	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.0	70	130			

Sample ID: **1910g04-001ams**	SampType: **MS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SL-4 (0-0.5')**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/2/2019**	SeqNo: **2196120** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.69	0.018	0.7032	0	98.1	57.1	141			
Toluene	0.72	0.035	0.7032	0	103	70	130			
Chlorobenzene	0.69	0.035	0.7032	0	97.4	70	130			
1,1-Dichloroethene	0.62	0.035	0.7032	0	87.6	38.5	141			
Trichloroethene (TCE)	0.61	0.035	0.7032	0	86.9	70	130			
Surr: Dibromofluoromethane	0.33		0.3516		93.1	70	130			
Surr: 1,2-Dichloroethane-d4	0.32		0.3516		91.1	70	130			
Surr: Toluene-d8	0.35		0.3516		100	70	130			
Surr: 4-Bromofluorobenzene	0.32		0.3516		90.1	70	130			

Sample ID: **1910g04-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SL-4 (0-0.5')**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/2/2019**	SeqNo: **2196121** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.64	0.018	0.7032	0	91.5	57.1	141	6.97	20	
Toluene	0.68	0.035	0.7032	0	97.1	70	130	5.96	20	
Chlorobenzene	0.63	0.035	0.7032	0	89.9	70	130	8.07	20	
1,1-Dichloroethene	0.59	0.035	0.7032	0	84.5	38.5	141	3.60	20	
Trichloroethene (TCE)	0.58	0.035	0.7032	0	82.1	70	130	5.58	20	
Surr: Dibromofluoromethane	0.32		0.3516		92.4	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.32		0.3516		91.9	70	130	0	0	
Surr: Toluene-d8	0.36		0.3516		103	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.31		0.3516		87.3	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48591**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **48591**	RunNo: **64294**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200845** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48591**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **48591**	RunNo: **64294**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200845** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.56		0.5000		111	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.2	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		87.1	70	130			

Sample ID: **lcs-48591**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **48591**	RunNo: **64294**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200846** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.92	0.025	1.000	0	92.4	68	135			
Toluene	0.90	0.050	1.000	0	90.0	70	130			
Chlorobenzene	0.91	0.050	1.000	0	90.8	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48591** SampType: **LCS** TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS** Batch ID: **48591** RunNo: **64294**
Prep Date: **11/5/2019** Analysis Date: **11/6/2019** SeqNo: **2200846** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.83	0.050	1.000	0	83.1	51.1	139			
Trichloroethene (TCE)	0.84	0.050	1.000	0	84.1	70	130			
Surr: Dibromofluoromethane	0.46		0.5000		92.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.4	70	130			
Surr: Toluene-d8	0.49		0.5000		98.0	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		84.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197919** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	19	1.0	20.00	0	95.9	70	130			
Chlorobenzene	20	1.0	20.00	0	100	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	85.1	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	86.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.7	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.3	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.2	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.6	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48568**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202666** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48568**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202666** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.1		3.330		62.1	26.7	85.9			
Surr: Phenol-d5	2.2		3.330		66.8	18.5	101			
Surr: 2,4,6-Tribromophenol	2.4		3.330		72.4	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		72.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		71.0	34.7	85.2			
Surr: 4-Terphenyl-d14	1.3		1.670		76.1	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48568**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202667** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.670	0	64.2	46	89.5			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	69.0	44.1	101			
2-Chlorophenol	1.9	0.20	3.330	0	56.3	47	91			
1,4-Dichlorobenzene	0.86	0.20	1.670	0	51.8	41.4	85.8			
2,4-Dinitrotoluene	0.94	0.50	1.670	0	56.0	37.4	82			
N-Nitrosodi-n-propylamine	1.1	0.20	1.670	0	64.4	47.8	92.9			
4-Nitrophenol	2.2	0.25	3.330	0	66.2	45	94.3			
Pentachlorophenol	2.0	0.40	3.330	0	58.6	31.7	76.9			
Phenol	2.0	0.20	3.330	0	61.2	49.4	92.5			
Pyrene	1.1	0.20	1.670	0	68.8	52.9	82.7			
1,2,4-Trichlorobenzene	1.0	0.20	1.670	0	61.3	43.6	98.1			
Surr: 2-Fluorophenol	1.7		3.330		51.9	26.7	85.9			
Surr: Phenol-d5	2.0		3.330		61.3	18.5	101			
Surr: 2,4,6-Tribromophenol	2.3		3.330		70.5	35.8	85.6			
Surr: Nitrobenzene-d5	1.0		1.670		62.3	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.1		1.670		64.7	34.7	85.2			
Surr: 4-Terphenyl-d14	1.2		1.670		70.3	37.4	91.3			

Sample ID: **mb-48625**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202834** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48625**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202834** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.17	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48625**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202834** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	1.7		3.330		51.7	26.7	85.9			
Surr: Phenol-d5	1.8		3.330		55.0	18.5	101			
Surr: 2,4,6-Tribromophenol	1.8		3.330		55.0	35.8	85.6			
Surr: Nitrobenzene-d5	1.1		1.670		65.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	0.96		1.670		57.3	34.7	85.2			
Surr: 4-Terphenyl-d14	0.72		1.670		42.9	37.4	91.3			

Sample ID: **lcs-48625**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202835** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.670	0	66.7	46	89.5			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	67.7	44.1	101			
2-Chlorophenol	1.9	0.20	3.330	0	57.9	47	91			
1,4-Dichlorobenzene	0.88	0.20	1.670	0	52.9	41.4	85.8			
2,4-Dinitrotoluene	1.0	0.50	1.670	0	60.5	37.4	82			
N-Nitrosodi-n-propylamine	1.1	0.20	1.670	0	65.0	47.8	92.9			
4-Nitrophenol	2.4	0.25	3.330	0	71.0	45	94.3			
Pentachlorophenol	2.0	0.40	3.330	0	61.2	31.7	76.9			
Phenol	2.0	0.20	3.330	0	60.2	49.4	92.5			
Pyrene	1.2	0.20	1.670	0	70.0	52.9	82.7			
1,2,4-Trichlorobenzene	1.1	0.20	1.670	0	64.0	43.6	98.1			
Surr: 2-Fluorophenol	1.7		3.330		50.5	26.7	85.9			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48625**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202835** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Phenol-d5	2.0		3.330		59.4	18.5	101			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.2	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		69.1	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		69.8	34.7	85.2			
Surr: 4-Terphenyl-d14	0.98		1.670		58.9	37.4	91.3			

Sample ID: **1910G04-007Ams**	SampType: **MS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **SL-5 (6-8')**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202843** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.710	0	66.5	28	113			
4-Chloro-3-methylphenol	2.3	0.51	3.410	0	66.9	28.8	121			
2-Chlorophenol	2.1	0.20	3.410	0	61.9	15.4	115			
1,4-Dichlorobenzene	0.63	0.20	1.710	0	37.0	15	107			
2,4-Dinitrotoluene	1.1	0.51	1.710	0	62.4	29.9	100			
N-Nitrosodi-n-propylamine	1.1	0.20	1.710	0	66.3	23.5	120			
4-Nitrophenol	2.3	0.26	3.410	0	68.7	42.3	125			
Pentachlorophenol	2.0	0.41	3.410	0	57.2	23.4	114			
Phenol	2.2	0.20	3.410	0	64.3	16.3	117			
Pyrene	1.1	0.20	1.710	0	64.9	34.2	122			
1,2,4-Trichlorobenzene	1.0	0.20	1.710	0	58.6	16.3	117			
Surr: 2-Fluorophenol	1.9		3.410		54.9	26.7	85.9			
Surr: Phenol-d5	2.1		3.410		60.4	18.5	101			
Surr: 2,4,6-Tribromophenol	2.1		3.410		61.2	35.8	85.6			
Surr: Nitrobenzene-d5	1.1		1.710		65.3	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.1		1.710		61.6	34.7	85.2			
Surr: 4-Terphenyl-d14	0.81		1.710		47.1	37.4	91.3			

Sample ID: **1910G04-007Amsd**	SampType: **MSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **SL-5 (6-8')**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202844** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.20	1.667	0	70.2	28	113	2.87	33.1	
4-Chloro-3-methylphenol	2.4	0.50	3.324	0	72.8	28.8	121	5.93	39	
2-Chlorophenol	2.1	0.20	3.324	0	63.7	15.4	115	0.372	27.1	
1,4-Dichlorobenzene	0.65	0.20	1.667	0	38.7	15	107	1.85	26.3	
2,4-Dinitrotoluene	1.1	0.50	1.667	0	68.0	29.9	100	6.17	51.5	
N-Nitrosodi-n-propylamine	1.2	0.20	1.667	0	69.2	23.5	120	1.71	22.8	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **1910G04-007Amsd** SampType: **MSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **SL-5 (6-8')** Batch ID: **48625** RunNo: **64365**
Prep Date: **11/6/2019** Analysis Date: **11/10/2019** SeqNo: **2202844** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Nitrophenol	2.3	0.25	3.324	0	70.6	42.3	125	0.219	52.9	
Pentachlorophenol	2.1	0.40	3.324	0	61.8	23.4	114	5.16	52.1	
Phenol	2.2	0.20	3.324	0	67.2	16.3	117	1.75	28.8	
Pyrene	1.1	0.20	1.667	0	68.9	34.2	122	3.59	37.1	
1,2,4-Trichlorobenzene	0.97	0.20	1.667	0	58.2	16.3	117	3.31	28.4	
Surr: 2-Fluorophenol	1.9		3.324		56.5	26.7	85.9	0	0	
Surr: Phenol-d5	2.1		3.324		63.5	18.5	101	0	0	
Surr: 2,4,6-Tribromophenol	2.1		3.324		63.9	35.8	85.6	0	0	
Surr: Nitrobenzene-d5	1.2		1.667		69.7	40.8	95.2	0	0	
Surr: 2-Fluorobiphenyl	1.1		1.667		64.5	34.7	85.2	0	0	
Surr: 4-Terphenyl-d14	0.86		1.667		51.4	37.4	91.3	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48585**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202486** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48585**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202486** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	110		200.0		56.7	15	101			
Surr: Phenol-d5	87		200.0		43.6	15	84.6			
Surr: 2,4,6-Tribromophenol	170		200.0		84.7	27.8	112			
Surr: Nitrobenzene-d5	84		100.0		84.4	33	113			
Surr: 2-Fluorobiphenyl	81		100.0		80.6	26.6	107			
Surr: 4-Terphenyl-d14	68		100.0		68.0	18.7	148			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48585**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202487** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	71	10	100.0	0	71.3	32.2	94			
4-Chloro-3-methylphenol	150	10	200.0	0	73.1	37.7	101			
2-Chlorophenol	140	10	200.0	0	68.8	32.6	90.1			
1,4-Dichlorobenzene	61	10	100.0	0	61.3	30	87.2			
2,4-Dinitrotoluene	57	10	100.0	0	57.5	35.9	85.8			
N-Nitrosodi-n-propylamine	71	10	100.0	0	71.3	37.1	108			
4-Nitrophenol	76	10	200.0	0	38.1	22.4	86.6			
Pentachlorophenol	130	20	200.0	0	64.5	31.6	91			
Phenol	86	10	200.0	0	42.9	21.7	84.9			
Pyrene	74	10	100.0	0	73.9	46.3	103			
1,2,4-Trichlorobenzene	65	10	100.0	0	65.3	30.2	88.3			
Surr: 2-Fluorophenol	100		200.0		52.4	15	101			
Surr: Phenol-d5	83		200.0		41.7	15	84.6			
Surr: 2,4,6-Tribromophenol	150		200.0		73.8	27.8	112			
Surr: Nitrobenzene-d5	72		100.0		72.2	33	113			
Surr: 2-Fluorobiphenyl	69		100.0		69.2	26.6	107			
Surr: 4-Terphenyl-d14	63		100.0		62.7	18.7	148			

Sample ID: **lcsd-48585**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202488** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	73	10	100.0	0	72.6	32.2	94	1.81	32.9	
4-Chloro-3-methylphenol	140	10	200.0	0	68.9	37.7	101	5.97	29.9	
2-Chlorophenol	130	10	200.0	0	66.4	32.6	90.1	3.48	28.5	
1,4-Dichlorobenzene	58	10	100.0	0	57.7	15	87.2	5.95	44.9	
2,4-Dinitrotoluene	58	10	100.0	0	58.2	35.9	85.8	1.31	28.5	
N-Nitrosodi-n-propylamine	69	10	100.0	0	69.3	37.1	108	2.87	29.9	
4-Nitrophenol	82	10	200.0	0	41.1	15	86.6	7.45	68	
Pentachlorophenol	130	20	200.0	0	63.8	31.6	91	1.03	39.5	
Phenol	81	10	200.0	0	40.4	15	84.9	6.08	44.2	
Pyrene	74	10	100.0	0	74.2	46.3	103	0.405	23.8	
1,2,4-Trichlorobenzene	64	10	100.0	0	63.6	15.7	88.3	2.67	38	
Surr: 2-Fluorophenol	98		200.0		49.1	15	101	0	0	
Surr: Phenol-d5	76		200.0		38.1	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	140		200.0		69.8	27.8	112	0	0	
Surr: Nitrobenzene-d5	67		100.0		66.9	33	113	0	0	
Surr: 2-Fluorobiphenyl	68		100.0		68.2	26.6	107	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcsd-48585**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**							
Client ID: **LCSS02**	Batch ID: **48585**	RunNo: **64352**							
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202488**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	62		100.0		62.3	18.7	148	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48711**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **48711**	RunNo: **64406**
Prep Date: **11/11/2019**	Analysis Date: **11/11/2019**	SeqNo: **2204339** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0027	0.033								J

Sample ID: **LCSLL-48711**	SampType: **LCSLL**	TestCode: **EPA Method 7471: Mercury**
Client ID: **BatchQC**	Batch ID: **48711**	RunNo: **64406**
Prep Date: **11/11/2019**	Analysis Date: **11/11/2019**	SeqNo: **2204340** Units: **mg/Kg**

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

Sample ID: **LCSLL-48711**	SampType: **LCSLL**	TestCode: **EPA Method 7471: Mercury**
Client ID: **BatchQC**	Batch ID: **48711**	RunNo: **64406**
Prep Date: **11/11/2019**	Analysis Date: **11/11/2019**	SeqNo: **2204342** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0085	0.033	0.006660	0	127	70	130			J

Sample ID: **LCS-48711**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **48711**	RunNo: **64406**
Prep Date: **11/11/2019**	Analysis Date: **11/11/2019**	SeqNo: **2204343** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	94.2	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48730**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206939** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-48730**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206940** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0044	0.00020	0.005000	0	87.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48626**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48626**	RunNo: **64473**
Prep Date: **11/6/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207237** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	0.034	0.10								J
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	1.9	2.5								J
Lead	ND	0.25								
Manganese	0.029	0.10								J
Nickel	0.19	0.50								J
Selenium	ND	2.5								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	0.46	2.5								J

Sample ID: **LCS-48626**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48626**	RunNo: **64473**
Prep Date: **11/6/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207241** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	24	2.5	25.00	0	94.6	80	120			
Barium	23	0.10	25.00	0	93.9	80	120			
Beryllium	24	0.15	25.00	0	94.7	80	120			
Cadmium	24	0.10	25.00	0	95.1	80	120			
Chromium	23	0.30	25.00	0	93.5	80	120			
Cobalt	24	0.30	25.00	0	94.2	80	120			
Iron	26	2.5	25.00	0	102	80	120			
Lead	24	0.25	25.00	0	96.4	80	120			
Manganese	24	0.10	25.00	0	94.2	80	120			
Nickel	23	0.50	25.00	0	93.4	80	120			
Selenium	20	2.5	25.00	0	81.3	80	120			
Silver	4.8	0.25	5.000	0	95.0	80	120			
Vanadium	24	2.5	25.00	0	94.7	80	120			
Zinc	24	2.5	25.00	0	94.5	80	120			

Sample ID: **MB-48604**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48604**	RunNo: **64594**
Prep Date: **11/5/2019**	Analysis Date: **11/18/2019**	SeqNo: **2212240** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48604**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48604**	RunNo: **64594**
Prep Date: **11/5/2019**	Analysis Date: **11/18/2019**	SeqNo: **2212240** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Arsenic	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	0.050	0.10								J
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	2.1	2.5								J
Lead	0.25	0.25								
Manganese	0.050	0.10								J
Nickel	0.25	0.50								J
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID: **LCS-48604**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48604**	RunNo: **64594**
Prep Date: **11/5/2019**	Analysis Date: **11/18/2019**	SeqNo: **2212242** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	24	2.5	25.00	0	97.6	80	120			
Arsenic	24	2.5	25.00	0	94.0	80	120			
Barium	24	0.10	25.00	0	95.4	80	120			
Beryllium	24	0.15	25.00	0	97.4	80	120			
Cadmium	24	0.10	25.00	0	95.8	80	120			
Chromium	24	0.30	25.00	0	94.0	80	120			
Cobalt	23	0.30	25.00	0	92.0	80	120			
Iron	29	2.5	25.00	0	115	80	120			
Lead	24	0.25	25.00	0	97.4	80	120			
Manganese	24	0.10	25.00	0	94.0	80	120			
Nickel	23	0.50	25.00	0	92.8	80	120			
Silver	5.1	0.25	5.000	0	102	80	120			
Vanadium	24	2.5	25.00	0	96.8	80	120			
Zinc	23	2.5	25.00	0	91.2	80	120			

Sample ID: **MB-48977**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48977**	RunNo: **64789**
Prep Date: **11/22/2019**	Analysis Date: **11/25/2019**	SeqNo: **2220399** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48977**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48977**	RunNo: **64789**
Prep Date: **11/22/2019**	Analysis Date: **11/25/2019**	SeqNo: **2220399** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	2.5								

Sample ID: **LCS-48977**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48977**	RunNo: **64789**
Prep Date: **11/22/2019**	Analysis Date: **11/25/2019**	SeqNo: **2220401** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	21	2.5	25.00	0	83.2	80	120			

Sample ID: **MB-48626**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48626**	RunNo: **64788**
Prep Date: **11/6/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220515** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								

Sample ID: **LCS-48626**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48626**	RunNo: **64788**
Prep Date: **11/6/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220517** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	23	2.5	25.00	0	92.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**
05-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64273**
Prep Date: **11/4/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199639** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	0.0012	0.050								J
Zinc	ND	0.020								

Sample ID: **LCS-48560**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48560**	RunNo: **64273**
Prep Date: **11/4/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199644** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	101	80	120			
Arsenic	0.49	0.020	0.5000	0	98.3	80	120			
Barium	0.48	0.020	0.5000	0	95.7	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.4	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Iron	0.51	0.020	0.5000	0	103	80	120			
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	97.7	80	120			
Silver	0.093	0.0050	0.1000	0	92.7	80	120			
Vanadium	0.50	0.050	0.5000	0	101	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64389**
Prep Date: **11/4/2019**	Analysis Date: **11/11/2019**	SeqNo: **2203945** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48560**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48560**	RunNo: **64389**
Prep Date: **11/4/2019**	Analysis Date: **11/11/2019**	SeqNo: **2203947** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.50	0.0050	0.5000	0	99.4	80	120			

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64501**
Prep Date: **11/4/2019**	Analysis Date: **11/13/2019**	SeqNo: **2208278** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: **LCS-48560**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48560**	RunNo: **64501**
Prep Date: **11/4/2019**	Analysis Date: **11/13/2019**	SeqNo: **2208283** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.51	0.0050	0.5000	0	102	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G04**

05-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	70	130			
Surr: BFB	9.5		10.00		95.5	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197979** 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	9.3		10.00		93.0	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1910G04** RcptNo: **1**

Received By: **Isaiah Ortiz** **10/31/2019 1:22:00 PM** I-OX

Completed By: **Leah Baca** **10/31/2019 3:12:30 PM** Leah Baca

Reviewed By: (300Combo: DM 10/31/19) ENM 11/1/19

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 ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

of preserved bottles checked for pH: 1 1 (<2 or >12 unless noted)

Adjusted? no

Checked by: DM 11/1/19

(300 Combo: 1 (2) ENM 10/31/19)

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	1.9	Good	Yes			
2	3.2	Good	Yes			
3	2.4	Good	Yes			
4	2.1	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: Yes ☐ No

Sample Temperature: See Remarks

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. 1910604	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B [redacted]	8270 [redacted]	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/30/19	1120	Soil	SL-4 (0-0.5')	8 oz jar - 2	Neat	-001			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1130		SL-4 (2-2.5')	8 oz JAR-2	NEAT	-002			X							X	X	X	X			
				4 oz JAR-1	NEAT															X		
				VIAL-2	MEOH											X						
	1140		SL-4 (6-8')	8 oz JAR-1	NEAT	-003			X							X	X	X	X			
				4 oz JAR-1	NEAT															X		
				VIAL-2	MEOH											X						

Date	Time	Relinquished by:	Received by:	Date	Time
10/31/19	0700		Courier	10/31	1322
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

1.9-0 CF 1.9°C 2.4-0 CF 2.4

3.2-0 CF 3.2°C 2.1-0 CF 2.1

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: See Remarks

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. 1910804	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B [redacted]	8270 SKINNER LIST	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/30/19	1150	Soil	SL-4 (14-16')	8 oz jar - 2	Neat	-004			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1240		SL-5 (0-0.5')	8ozJAR-2	NEAT	-005			X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MeOH											X						
	1400		SL-5 (2-2.5')	8ozJAR-2	NEAT	-006			X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MeOH											X						

Date: 10/31/19 Time: 0700 Relinquished by: [signature]

Received by: [signature] courier Date: 10/31 Time: 13:22

Date: Time: Relinquished by:

Received by: Date: Time:

Remarks: See attached sheet for Analytical Methods and Target Analytes.

1.9 - 0 (CF) 1.9 2.4 - 0 (CF) 2.4

3.2 - 0 (CF) 3.2 2.1 - 0 (CF) 2.1

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: See Remarks

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B - [redacted]	8270 - [redacted]	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/30/19	1420	Soil	SL-5 (6-8')	8 oz jar - ~~1~~ 2	Neat	1910604-007			X							X	X	X	X			
↓	↓	↓	↓	4 oz jar - 1	Neat	1														X		
				~~Vial - 2~~	~~MeOH~~	#										X						
10/30/19	1430	SOIL	SL-5 (12-14')	8OZJAR-2	NEAT	-008			X							X	X	X	X			
	↓	↓	↓	4OZJAR-1	NEAT	1														X		
	↓		↓	VIAL-2	MEOH	—										X						
	—		DUP02	8OZJAR-2	NEAT	-009			X							X	X	X	X			
	—		↓	4OZJAR-1	NEAT	1														X		
↓	—	↓	↓	VIAL-2	MEOH	1										X						
10/30/19	—	MEOH	MEOH BLANK	VIAL-1	MEOH	-010																

Date	Time	Relinquished by:	Received by:	Date	Time
10/31/19	0700	[signature]	[signature] Courier	10/31/19	1322
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

1.9 - 0 | CF | 1.9 °C 2.4 - 0 | CF | 2.4 °C

3.2 - 0 | CF | 3.2 °C 2.1 - 0 | CF | 2.1 °C

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ■ Yes ☐ No

Sample Temperature: See Remarks

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B [redacted]	8270 - [redacted]	Metals - Total	Chromium VI	Anions	Cyanide			Air Bubbles (Y or N)
10/30/19	1530	Water	EB103019	40ml voa - 5	HCl	1910604-011			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -1	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			

Date	Time	Relinquished by:	Received by:	Date	Time
10/31/19	0700		Courier	10/31/19	1322
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

1.9 - 0 |CF| 1.9 °C 2.4 - 0 |CF| 2.4 °C

3.2 - 0 |CF| 3.2 °C 2.1 - 0 |CF| 2.1 °C

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

December 18, 2019

Brian Moore

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX

RE: Sanitary Sewer Lagoon OrderNo.: 1910G20

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 5 sample(s) on 10/31/2019 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

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

Case Narrative

WO#: **1910G20**
Date: **12/18/2019**

CLIENT: Marathon
Project: Sanitary Sewer Lagoon

Analytical Notes Regarding EPA Method 8270:
The equipment blank sample for 8270 was not spiked with the surrogate standards. The sample was analzyed and was nondetect for all compounds. The sample was reextracted past the holding time, and reanalzyed. The data for the second extraction confirms the data for the first extraction.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:10:00 AM
Lab ID: 1910G20-001 **Matrix:** SOIL **Received Date:** 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	54	1.8	9.1		mg/Kg	1	11/7/2019 5:45:51 PM	48590
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	11/7/2019 5:45:51 PM	48590
Surr: DNOP	98.8	0	70-130		%Rec	1	11/7/2019 5:45:51 PM	48590
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.98	3.2		mg/Kg	1	11/5/2019 12:09:13 AM	A64209
Surr: BFB	99.3	0	77.4-118		%Rec	1	11/5/2019 12:09:13 AM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.9	1.5	1.5		mg/Kg	5	11/13/2019 8:41:23 PM	48786
Chloride	13	7.5	7.5		mg/Kg	5	11/13/2019 8:41:23 PM	48786
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/13/2019 8:41:23 PM	48786
Nitrogen, Nitrate (As N)	30	1.5	1.5		mg/Kg	5	11/13/2019 8:41:23 PM	48786
Sulfate	120	7.5	7.5		mg/Kg	5	11/13/2019 8:41:23 PM	48786
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.082	0.0018	0.033		mg/Kg	1	11/11/2019 5:04:43 PM	48710
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.73	4.9		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Arsenic	ND	2.8	4.9		mg/Kg	2	11/21/2019 8:29:25 PM	48604
Barium	850	2.3	9.9		mg/Kg	100	11/20/2019 8:51:33 PM	48604
Beryllium	0.87	0.018	0.30		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Cadmium	ND	0.048	0.20		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Chromium	8.8	0.16	0.59		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Cobalt	3.3	0.21	0.59		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Iron	12000	72	250		mg/Kg	100	11/20/2019 8:51:33 PM	48604
Lead	5.4	0.48	0.49		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Manganese	97	0.041	0.20		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Nickel	7.5	0.29	0.99		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Selenium	ND	2.5	4.9		mg/Kg	2	11/25/2019 6:53:57 PM	48977
Silver	ND	0.063	0.49		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Vanadium	14	0.13	4.9		mg/Kg	2	11/20/2019 8:49:57 PM	48604
Zinc	34	0.78	4.9		mg/Kg	2	11/20/2019 8:49:57 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.59	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Acenaphthylene	ND	0.54	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Aniline	ND	0.63	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Anthracene	ND	0.52	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Azobenzene	ND	0.69	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Benz(a)anthracene	ND	0.47	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:10:00 AM
Lab ID: 1910G20-001
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.44	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Benzo(b)fluoranthene	ND	0.43	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Benzo(g,h,i)perylene	ND	0.42	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Benzo(k)fluoranthene	ND	0.44	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Benzoic acid	ND	0.51	2.4		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Benzyl alcohol	ND	0.61	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Bis(2-chloroethoxy)methane	ND	0.72	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Bis(2-chloroethyl)ether	ND	0.60	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.56	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.70	2.4		mg/Kg	1	11/9/2019 6:31:36 PM	48568
4-Bromophenyl phenyl ether	ND	0.58	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Butyl benzyl phthalate	ND	0.50	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Carbazole	ND	0.57	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
4-Chloro-3-methylphenol	ND	0.75	2.4		mg/Kg	1	11/9/2019 6:31:36 PM	48568
4-Chloroaniline	ND	0.69	2.4		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2-Chloronaphthalene	ND	0.61	1.2		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2-Chlorophenol	ND	0.61	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
4-Chlorophenyl phenyl ether	ND	0.53	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Chrysene	ND	0.43	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Di-n-butyl phthalate	ND	0.73	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Di-n-octyl phthalate	ND	0.50	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Dibenz(a,h)anthracene	ND	0.44	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Dibenzofuran	ND	0.64	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
1,2-Dichlorobenzene	ND	0.59	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
1,3-Dichlorobenzene	ND	0.52	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
1,4-Dichlorobenzene	ND	0.52	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
3,3´-Dichlorobenzidine	ND	0.44	1.2		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Diethyl phthalate	ND	0.70	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Dimethyl phthalate	ND	0.65	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2,4-Dichlorophenol	ND	0.57	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2,4-Dimethylphenol	ND	0.54	1.5		mg/Kg	1	11/9/2019 6:31:36 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.45	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2,4-Dinitrophenol	ND	0.36	2.4		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2,4-Dinitrotoluene	ND	0.58	2.4		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2,6-Dinitrotoluene	ND	0.64	2.4		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Fluoranthene	ND	0.55	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Fluorene	ND	0.56	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Hexachlorobenzene	ND	0.61	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Hexachlorobutadiene	ND	0.68	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:10:00 AM
Lab ID: 1910G20-001
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.56	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Hexachloroethane	ND	0.55	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.49	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Isophorone	ND	0.72	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
1-Methylnaphthalene	ND	0.73	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2-Methylnaphthalene	ND	0.71	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2-Methylphenol	ND	0.58	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
3+4-Methylphenol	ND	0.60	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
N-Nitrosodi-n-propylamine	ND	0.70	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
N-Nitrosodiphenylamine	ND	0.51	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Naphthalene	ND	0.74	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2-Nitroaniline	ND	0.70	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
3-Nitroaniline	ND	0.68	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
4-Nitroaniline	ND	0.62	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Nitrobenzene	ND	0.68	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2-Nitrophenol	ND	0.67	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
4-Nitrophenol	ND	0.66	1.2		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Pentachlorophenol	ND	0.50	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Phenanthrene	ND	0.53	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Phenol	ND	0.61	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Pyrene	ND	0.46	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Pyridine	ND	0.59	2.0		mg/Kg	1	11/9/2019 6:31:36 PM	48568
1,2,4-Trichlorobenzene	ND	0.76	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2,4,5-Trichlorophenol	ND	0.63	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
2,4,6-Trichlorophenol	ND	0.51	0.98		mg/Kg	1	11/9/2019 6:31:36 PM	48568
Surr: 2-Fluorophenol	47.2		26.7-85.9		%Rec	1	11/9/2019 6:31:36 PM	48568
Surr: Phenol-d5	51.6		18.5-101		%Rec	1	11/9/2019 6:31:36 PM	48568
Surr: 2,4,6-Tribromophenol	60.3		35.8-85.6		%Rec	1	11/9/2019 6:31:36 PM	48568
Surr: Nitrobenzene-d5	49.9		40.8-95.2		%Rec	1	11/9/2019 6:31:36 PM	48568
Surr: 2-Fluorobiphenyl	62.8		34.7-85.2		%Rec	1	11/9/2019 6:31:36 PM	48568
Surr: 4-Terphenyl-d14	66.1		37.4-91.3		%Rec	1	11/9/2019 6:31:36 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0027	0.016		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Toluene	ND	0.0031	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Ethylbenzene	ND	0.0019	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0077	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0030	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0031	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0033	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:10:00 AM
Lab ID: 1910G20-001 **Matrix:** SOIL **Received Date:** 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0030	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Naphthalene	ND	0.0065	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1-Methylnaphthalene	ND	0.019	0.13		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
2-Methylnaphthalene	ND	0.014	0.13		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Acetone	ND	0.027	0.49		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Bromobenzene	ND	0.0031	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Bromodichloromethane	ND	0.0030	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Bromoform	ND	0.0029	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Bromomethane	ND	0.0078	0.097		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
2-Butanone	0.039	0.037	0.32	J	mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Carbon disulfide	ND	0.011	0.32		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Carbon tetrachloride	ND	0.0031	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Chlorobenzene	ND	0.0042	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Chloroethane	ND	0.0048	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Chloroform	ND	0.0026	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Chloromethane	ND	0.0031	0.097		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
2-Chlorotoluene	ND	0.0028	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
4-Chlorotoluene	ND	0.0027	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
cis-1,2-DCE	ND	0.0044	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
cis-1,3-Dichloropropene	ND	0.0027	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0033	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Dibromochloromethane	ND	0.0023	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Dibromomethane	ND	0.0035	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2-Dichlorobenzene	ND	0.0027	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,3-Dichlorobenzene	ND	0.0028	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,4-Dichlorobenzene	ND	0.0027	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Dichlorodifluoromethane	ND	0.0075	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,1-Dichloroethane	ND	0.0021	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,1-Dichloroethene	ND	0.013	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2-Dichloropropane	ND	0.0024	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,3-Dichloropropane	ND	0.0035	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
2,2-Dichloropropane	ND	0.011	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,1-Dichloropropene	ND	0.0030	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Hexachlorobutadiene	ND	0.0033	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
2-Hexanone	ND	0.0054	0.32		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Isopropylbenzene	ND	0.0023	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
4-Isopropyltoluene	ND	0.0027	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
4-Methyl-2-pentanone	ND	0.0061	0.32		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Methylene chloride	ND	0.0057	0.097		mg/Kg	1	11/2/2019 9:01:29 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:10:00 AM
Lab ID: 1910G20-001 **Matrix:** SOIL **Received Date:** 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0030	0.097		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
n-Propylbenzene	ND	0.0026	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
sec-Butylbenzene	ND	0.0037	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Styrene	ND	0.0025	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
tert-Butylbenzene	ND	0.0031	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0022	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0033	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Tetrachloroethene (PCE)	ND	0.0026	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
trans-1,2-DCE	ND	0.0030	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
trans-1,3-Dichloropropene	ND	0.0034	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0028	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0033	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,1,1-Trichloroethane	ND	0.0029	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,1,2-Trichloroethane	ND	0.0023	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Trichloroethene (TCE)	ND	0.0038	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Trichlorofluoromethane	ND	0.011	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
1,2,3-Trichloropropane	ND	0.0052	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Vinyl chloride	ND	0.0021	0.032		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Xylenes, Total	ND	0.0082	0.065		mg/Kg	1	11/2/2019 9:01:29 AM	B64178
Surr: Dibromofluoromethane	107		70-130		%Rec	1	11/2/2019 9:01:29 AM	B64178
Surr: 1,2-Dichloroethane-d4	91.7		70-130		%Rec	1	11/2/2019 9:01:29 AM	B64178
Surr: Toluene-d8	103		70-130		%Rec	1	11/2/2019 9:01:29 AM	B64178
Surr: 4-Bromofluorobenzene	87.6		70-130		%Rec	1	11/2/2019 9:01:29 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:25:00 AM
Lab ID: 1910G20-002 **Matrix:** SOIL **Received Date:** 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.9	9.7		mg/Kg	1	11/6/2019 9:49:10 PM	48590
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	11/6/2019 9:49:10 PM	48590
Surr: DNOP	94.5	0	70-130		%Rec	1	11/6/2019 9:49:10 PM	48590
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.0	3.3		mg/Kg	1	11/5/2019 12:32:12 AM	A64209
Surr: BFB	97.8	0	77.4-118		%Rec	1	11/5/2019 12:32:12 AM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.9	1.5	1.5		mg/Kg	5	11/13/2019 9:06:11 PM	48786
Chloride	10	7.5	7.5		mg/Kg	5	11/13/2019 9:06:11 PM	48786
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/13/2019 9:06:11 PM	48786
Nitrogen, Nitrate (As N)	10	1.5	1.5		mg/Kg	5	11/13/2019 9:06:11 PM	48786
Sulfate	100	7.5	7.5		mg/Kg	5	11/13/2019 9:06:11 PM	48786
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0093	0.0018	0.033	J	mg/Kg	1	11/11/2019 5:10:43 PM	48710
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.73	5.0		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Arsenic	ND	2.8	5.0		mg/Kg	2	11/21/2019 8:30:51 PM	48604
Barium	180	0.046	0.20		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Beryllium	0.79	0.018	0.30		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Cadmium	ND	0.048	0.20		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Chromium	6.9	0.16	0.60		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Cobalt	3.7	0.21	0.60		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Iron	11000	72	250		mg/Kg	100	11/20/2019 8:59:39 PM	48604
Lead	3.4	0.48	0.50		mg/Kg	2	11/26/2019 6:59:09 PM	48977
Manganese	210	0.041	0.20		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Nickel	6.5	0.30	1.0		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Selenium	ND	2.5	5.0		mg/Kg	2	11/25/2019 6:55:39 PM	48977
Silver	ND	0.064	0.50		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Vanadium	16	0.13	5.0		mg/Kg	2	11/20/2019 8:53:20 PM	48604
Zinc	12	0.79	5.0		mg/Kg	2	11/20/2019 8:53:20 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Aniline	ND	0.13	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Anthracene	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Benz(a)anthracene	ND	0.095	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:25:00 AM
Lab ID: 1910G20-002
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.088	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Benzo(b)fluoranthene	ND	0.087	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Benzo(g,h,i)perylene	ND	0.085	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Benzo(k)fluoranthene	ND	0.090	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Benzoic acid	ND	0.10	0.49		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Bis(2-ethylhexyl)phthalate	0.14	0.14	0.49	J	mg/Kg	1	11/9/2019 7:00:11 PM	48568
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Carbazole	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
4-Chloro-3-methylphenol	ND	0.15	0.49		mg/Kg	1	11/9/2019 7:00:11 PM	48568
4-Chloroaniline	ND	0.14	0.49		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2-Chloronaphthalene	ND	0.12	0.25		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Chrysene	ND	0.087	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Di-n-butyl phthalate	0.22	0.15	0.39	J	mg/Kg	1	11/9/2019 7:00:11 PM	48568
Di-n-octyl phthalate	ND	0.10	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Dibenz(a,h)anthracene	ND	0.090	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
1,3-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
1,4-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
3,3´-Dichlorobenzidine	ND	0.088	0.25		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2,4-Dichlorophenol	ND	0.11	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg	1	11/9/2019 7:00:11 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.091	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2,4-Dinitrophenol	ND	0.072	0.49		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2,4-Dinitrotoluene	ND	0.12	0.49		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2,6-Dinitrotoluene	ND	0.13	0.49		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Fluorene	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:25:00 AM
Lab ID: 1910G20-002
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.098	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Isophorone	ND	0.15	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2-Methylnaphthalene	ND	0.14	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2-Methylphenol	ND	0.12	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
4-Nitroaniline	ND	0.13	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Nitrobenzene	ND	0.14	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2-Nitrophenol	ND	0.13	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
4-Nitrophenol	ND	0.13	0.25		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Pentachlorophenol	ND	0.10	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Phenol	ND	0.12	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Pyrene	ND	0.093	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Pyridine	ND	0.12	0.39		mg/Kg	1	11/9/2019 7:00:11 PM	48568
1,2,4-Trichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
2,4,6-Trichlorophenol	ND	0.10	0.20		mg/Kg	1	11/9/2019 7:00:11 PM	48568
Surr: 2-Fluorophenol	59.1		26.7-85.9		%Rec	1	11/9/2019 7:00:11 PM	48568
Surr: Phenol-d5	65.3		18.5-101		%Rec	1	11/9/2019 7:00:11 PM	48568
Surr: 2,4,6-Tribromophenol	65.8		35.8-85.6		%Rec	1	11/9/2019 7:00:11 PM	48568
Surr: Nitrobenzene-d5	65.4		40.8-95.2		%Rec	1	11/9/2019 7:00:11 PM	48568
Surr: 2-Fluorobiphenyl	65.8		34.7-85.2		%Rec	1	11/9/2019 7:00:11 PM	48568
Surr: 4-Terphenyl-d14	71.8		37.4-91.3		%Rec	1	11/9/2019 7:00:11 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0027	0.016		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Toluene	ND	0.0032	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Ethylbenzene	ND	0.0019	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0078	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0030	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0032	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0034	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:25:00 AM
Lab ID: 1910G20-002
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0030	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Naphthalene	ND	0.0066	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1-Methylnaphthalene	ND	0.019	0.13		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
2-Methylnaphthalene	ND	0.014	0.13		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Acetone	ND	0.027	0.49		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Bromobenzene	ND	0.0032	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Bromodichloromethane	ND	0.0030	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Bromoform	ND	0.0030	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Bromomethane	ND	0.0079	0.099		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
2-Butanone	0.041	0.038	0.33	J	mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Carbon disulfide	ND	0.011	0.33		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Carbon tetrachloride	ND	0.0031	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Chlorobenzene	ND	0.0042	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Chloroethane	ND	0.0049	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Chloroform	ND	0.0026	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Chloromethane	ND	0.0032	0.099		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
2-Chlorotoluene	ND	0.0029	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
4-Chlorotoluene	ND	0.0027	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
cis-1,2-DCE	ND	0.0045	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
cis-1,3-Dichloropropene	ND	0.0028	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0034	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Dibromochloromethane	ND	0.0023	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Dibromomethane	ND	0.0035	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2-Dichlorobenzene	ND	0.0027	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,3-Dichlorobenzene	ND	0.0029	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,4-Dichlorobenzene	ND	0.0028	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Dichlorodifluoromethane	ND	0.0076	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,1-Dichloroethane	ND	0.0021	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,1-Dichloroethene	ND	0.013	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2-Dichloropropane	ND	0.0024	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,3-Dichloropropane	ND	0.0036	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
2,2-Dichloropropane	ND	0.011	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,1-Dichloropropene	ND	0.0030	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Hexachlorobutadiene	ND	0.0034	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
2-Hexanone	ND	0.0055	0.33		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Isopropylbenzene	ND	0.0024	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
4-Isopropyltoluene	ND	0.0027	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
4-Methyl-2-pentanone	ND	0.0062	0.33		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Methylene chloride	ND	0.0058	0.099		mg/Kg	1	11/2/2019 9:30:11 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:25:00 AM
Lab ID: 1910G20-002
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0031	0.099		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
n-Propylbenzene	ND	0.0026	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
sec-Butylbenzene	ND	0.0037	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Styrene	ND	0.0026	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
tert-Butylbenzene	ND	0.0031	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0022	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0033	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Tetrachloroethene (PCE)	ND	0.0026	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
trans-1,2-DCE	ND	0.0030	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
trans-1,3-Dichloropropene	ND	0.0035	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0029	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0033	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,1,1-Trichloroethane	ND	0.0030	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,1,2-Trichloroethane	ND	0.0023	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Trichloroethene (TCE)	ND	0.0038	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Trichlorofluoromethane	ND	0.011	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
1,2,3-Trichloropropane	ND	0.0053	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Vinyl chloride	ND	0.0022	0.033		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Xylenes, Total	ND	0.0083	0.066		mg/Kg	1	11/2/2019 9:30:11 AM	B64178
Surr: Dibromofluoromethane	108		70-130		%Rec	1	11/2/2019 9:30:11 AM	B64178
Surr: 1,2-Dichloroethane-d4	92.5		70-130		%Rec	1	11/2/2019 9:30:11 AM	B64178
Surr: Toluene-d8	105		70-130		%Rec	1	11/2/2019 9:30:11 AM	B64178
Surr: 4-Bromofluorobenzene	86.3		70-130		%Rec	1	11/2/2019 9:30:11 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:40:00 AM
Lab ID: 1910G20-003
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.7	8.6		mg/Kg	1	11/6/2019 10:10:59 PM	48590
Motor Oil Range Organics (MRO)	ND	43	43		mg/Kg	1	11/6/2019 10:10:59 PM	48590
Surr: DNOP	93.8	0	70-130		%Rec	1	11/6/2019 10:10:59 PM	48590
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.84	2.8		mg/Kg	1	11/5/2019 12:55:11 AM	A64209
Surr: BFB	99.2	0	77.4-118		%Rec	1	11/5/2019 12:55:11 AM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.8	1.5	1.5		mg/Kg	5	11/13/2019 9:55:50 PM	48786
Chloride	20	7.5	7.5		mg/Kg	5	11/13/2019 9:55:50 PM	48786
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/13/2019 9:55:50 PM	48786
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/13/2019 9:55:50 PM	48786
Sulfate	60	7.5	7.5		mg/Kg	5	11/13/2019 9:55:50 PM	48786
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0030	0.0018	0.032	J	mg/Kg	1	11/11/2019 5:12:44 PM	48710
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Arsenic	ND	2.9	5.0		mg/Kg	2	11/21/2019 8:36:35 PM	48604
Barium	64	0.047	0.20		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Beryllium	0.84	0.018	0.30		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Cadmium	ND	0.049	0.20		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Chromium	7.0	0.16	0.60		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Cobalt	3.9	0.21	0.60		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Iron	12000	73	250		mg/Kg	100	11/20/2019 9:07:07 PM	48604
Lead	3.2	0.49	0.50		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Manganese	310	0.042	0.20		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Nickel	7.0	0.30	1.0		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Selenium	ND	2.5	4.9		mg/Kg	2	11/25/2019 6:57:22 PM	48977
Silver	ND	0.064	0.50		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Vanadium	14	0.13	5.0		mg/Kg	2	11/20/2019 9:01:25 PM	48604
Zinc	10	0.80	5.0		mg/Kg	2	11/20/2019 9:01:25 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Acenaphthylene	ND	0.10	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Aniline	ND	0.12	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Anthracene	ND	0.098	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Azobenzene	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Benz(a)anthracene	ND	0.088	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:40:00 AM
Lab ID: 1910G20-003
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.081	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Benzo(b)fluoranthene	ND	0.081	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Benzo(g,h,i)perylene	ND	0.078	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Benzo(k)fluoranthene	ND	0.083	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Benzoic acid	ND	0.094	0.46		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Benzyl alcohol	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Bis(2-chloroethoxy)methane	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Bis(2-chloroethyl)ether	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Bis(2-chloroisopropyl)ether	ND	0.10	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Bis(2-ethylhexyl)phthalate	ND	0.13	0.46		mg/Kg	1	11/9/2019 7:28:49 PM	48568
4-Bromophenyl phenyl ether	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Butyl benzyl phthalate	ND	0.093	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Carbazole	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
4-Chloro-3-methylphenol	ND	0.14	0.46		mg/Kg	1	11/9/2019 7:28:49 PM	48568
4-Chloroaniline	ND	0.13	0.46		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2-Chloronaphthalene	ND	0.11	0.23		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2-Chlorophenol	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
4-Chlorophenyl phenyl ether	ND	0.10	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Chrysene	ND	0.081	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Di-n-butyl phthalate	ND	0.14	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Di-n-octyl phthalate	ND	0.093	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Dibenz(a,h)anthracene	ND	0.083	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Dibenzofuran	ND	0.12	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
1,2-Dichlorobenzene	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
1,3-Dichlorobenzene	ND	0.096	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
1,4-Dichlorobenzene	ND	0.097	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
3,3´-Dichlorobenzidine	ND	0.081	0.23		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Diethyl phthalate	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Dimethyl phthalate	ND	0.12	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2,4-Dichlorophenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2,4-Dimethylphenol	ND	0.10	0.27		mg/Kg	1	11/9/2019 7:28:49 PM	48568
4,6-Dinitro-2-methylphenol	ND	0.084	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2,4-Dinitrophenol	ND	0.066	0.46		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2,4-Dinitrotoluene	ND	0.11	0.46		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2,6-Dinitrotoluene	ND	0.12	0.46		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Fluoranthene	ND	0.10	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Fluorene	ND	0.10	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Hexachlorobenzene	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Hexachlorobutadiene	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:40:00 AM
Lab ID: 1910G20-003
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.10	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Hexachloroethane	ND	0.10	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Indeno(1,2,3-cd)pyrene	ND	0.091	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Isophorone	ND	0.13	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
1-Methylnaphthalene	ND	0.14	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2-Methylnaphthalene	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2-Methylphenol	ND	0.11	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
3+4-Methylphenol	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
N-Nitrosodi-n-propylamine	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
N-Nitrosodiphenylamine	ND	0.096	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Naphthalene	ND	0.14	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2-Nitroaniline	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
3-Nitroaniline	ND	0.13	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Nitrobenzene	ND	0.13	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2-Nitrophenol	ND	0.12	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
4-Nitrophenol	ND	0.12	0.23		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Pentachlorophenol	ND	0.094	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Phenanthrene	ND	0.099	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Phenol	ND	0.11	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Pyrene	ND	0.086	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Pyridine	ND	0.11	0.37		mg/Kg	1	11/9/2019 7:28:49 PM	48568
1,2,4-Trichlorobenzene	ND	0.14	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2,4,5-Trichlorophenol	ND	0.12	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
2,4,6-Trichlorophenol	ND	0.096	0.18		mg/Kg	1	11/9/2019 7:28:49 PM	48568
Surr: 2-Fluorophenol	55.8		26.7-85.9		%Rec	1	11/9/2019 7:28:49 PM	48568
Surr: Phenol-d5	56.3		18.5-101		%Rec	1	11/9/2019 7:28:49 PM	48568
Surr: 2,4,6-Tribromophenol	53.5		35.8-85.6		%Rec	1	11/9/2019 7:28:49 PM	48568
Surr: Nitrobenzene-d5	63.2		40.8-95.2		%Rec	1	11/9/2019 7:28:49 PM	48568
Surr: 2-Fluorobiphenyl	49.5		34.7-85.2		%Rec	1	11/9/2019 7:28:49 PM	48568
Surr: 4-Terphenyl-d14	55.9		37.4-91.3		%Rec	1	11/9/2019 7:28:49 PM	48568
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0023	0.014		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Toluene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Ethylbenzene	ND	0.0016	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0066	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0025	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0028	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:40:00 AM
Lab ID: 1910G20-003
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0025	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Naphthalene	ND	0.0056	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1-Methylnaphthalene	ND	0.016	0.11		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Acetone	ND	0.023	0.42		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Bromobenzene	ND	0.0027	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Bromodichloromethane	ND	0.0025	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Bromoform	ND	0.0025	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Bromomethane	ND	0.0067	0.083		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
2-Butanone	ND	0.032	0.28		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Carbon disulfide	ND	0.0092	0.28		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Carbon tetrachloride	ND	0.0026	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Chlorobenzene	ND	0.0036	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Chloroethane	ND	0.0041	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Chloroform	ND	0.0022	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Chloromethane	ND	0.0027	0.083		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
2-Chlorotoluene	ND	0.0024	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
4-Chlorotoluene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
cis-1,2-DCE	ND	0.0038	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
cis-1,3-Dichloropropene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0029	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Dibromochloromethane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Dibromomethane	ND	0.0030	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,3-Dichlorobenzene	ND	0.0024	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,4-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Dichlorodifluoromethane	ND	0.0065	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,1-Dichloroethane	ND	0.0018	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,1-Dichloroethene	ND	0.011	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2-Dichloropropane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,3-Dichloropropane	ND	0.0030	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
2,2-Dichloropropane	ND	0.0090	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,1-Dichloropropene	ND	0.0025	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Hexachlorobutadiene	ND	0.0028	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
2-Hexanone	ND	0.0046	0.28		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Isopropylbenzene	ND	0.0020	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
4-Isopropyltoluene	ND	0.0023	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
4-Methyl-2-pentanone	ND	0.0053	0.28		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Methylene chloride	ND	0.0049	0.083		mg/Kg	1	11/2/2019 9:58:57 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (6-8')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:40:00 AM
Lab ID: 1910G20-003
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0026	0.083		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
n-Propylbenzene	ND	0.0022	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
sec-Butylbenzene	ND	0.0031	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Styrene	ND	0.0022	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
tert-Butylbenzene	ND	0.0026	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0019	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0028	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Tetrachloroethene (PCE)	ND	0.0022	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
trans-1,2-DCE	ND	0.0025	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
trans-1,3-Dichloropropene	ND	0.0029	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0024	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0028	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,1,1-Trichloroethane	ND	0.0025	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,1,2-Trichloroethane	ND	0.0020	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Trichloroethene (TCE)	ND	0.0032	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Trichlorofluoromethane	ND	0.0094	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
1,2,3-Trichloropropane	ND	0.0045	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Vinyl chloride	ND	0.0018	0.028		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Xylenes, Total	ND	0.0070	0.056		mg/Kg	1	11/2/2019 9:58:57 AM	B64178
Surr: Dibromofluoromethane	112		70-130		%Rec	1	11/2/2019 9:58:57 AM	B64178
Surr: 1,2-Dichloroethane-d4	92.3		70-130		%Rec	1	11/2/2019 9:58:57 AM	B64178
Surr: Toluene-d8	101		70-130		%Rec	1	11/2/2019 9:58:57 AM	B64178
Surr: 4-Bromofluorobenzene	89.6		70-130		%Rec	1	11/2/2019 9:58:57 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:55:00 AM
Lab ID: 1910G20-004
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.9	9.4		mg/Kg	1	11/6/2019 10:32:54 PM	48590
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	11/6/2019 10:32:54 PM	48590
Surr: DNOP	94.7	0	70-130		%Rec	1	11/6/2019 10:32:54 PM	48590
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.94	3.1		mg/Kg	1	11/5/2019 1:18:09 AM	A64209
Surr: BFB	96.9	0	77.4-118		%Rec	1	11/5/2019 1:18:09 AM	A64209
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.8	1.5	1.5		mg/Kg	5	11/13/2019 10:20:39 P	48786
Chloride	12	7.5	7.5		mg/Kg	5	11/13/2019 10:20:39 P	48786
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/13/2019 10:20:39 P	48786
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/13/2019 10:20:39 P	48786
Sulfate	54	7.5	7.5		mg/Kg	5	11/13/2019 10:20:39 P	48786
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0021	0.0018	0.033	J	mg/Kg	1	11/11/2019 5:14:46 PM	48710
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.76	5.2		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Arsenic	ND	2.9	5.2		mg/Kg	2	11/21/2019 8:37:59 PM	48604
Barium	880	2.4	10		mg/Kg	100	11/20/2019 9:12:47 PM	48604
Beryllium	0.95	0.019	0.31		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Cadmium	ND	0.050	0.21		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Chromium	13	0.16	0.62		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Cobalt	6.1	0.22	0.62		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Iron	19000	75	260		mg/Kg	100	11/20/2019 9:12:47 PM	48604
Lead	3.0	0.50	0.52		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Manganese	660	2.1	10		mg/Kg	100	11/20/2019 9:12:47 PM	48604
Nickel	15	0.31	1.0		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Selenium	ND	2.5	4.9		mg/Kg	2	11/25/2019 6:59:04 PM	48977
Silver	ND	0.066	0.52		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Vanadium	17	0.14	5.2		mg/Kg	2	11/20/2019 9:08:55 PM	48604
Zinc	17	0.82	5.2		mg/Kg	2	11/20/2019 9:08:55 PM	48604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Acenaphthylene	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Aniline	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Anthracene	ND	0.10	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Azobenzene	ND	0.13	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Benz(a)anthracene	ND	0.093	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:55:00 AM
Lab ID: 1910G20-004
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.086	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Benzo(b)fluoranthene	ND	0.085	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Benzo(g,h,i)perylene	ND	0.083	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Benzo(k)fluoranthene	ND	0.088	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Benzoic acid	ND	0.10	0.48		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Bis(2-chloroethyl)ether	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Bis(2-ethylhexyl)phthalate	ND	0.14	0.48		mg/Kg	1	11/18/2019 2:31:54 PM	48729
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Butyl benzyl phthalate	ND	0.099	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Carbazole	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
4-Chloro-3-methylphenol	ND	0.15	0.48		mg/Kg	1	11/18/2019 2:31:54 PM	48729
4-Chloroaniline	ND	0.14	0.48		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2-Chloronaphthalene	ND	0.12	0.24		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
4-Chlorophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Chrysene	ND	0.085	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Di-n-butyl phthalate	ND	0.14	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Di-n-octyl phthalate	ND	0.098	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Dibenz(a,h)anthracene	ND	0.088	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Dibenzofuran	ND	0.13	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
1,2-Dichlorobenzene	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
1,3-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
1,4-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
3,3´-Dichlorobenzidine	ND	0.086	0.24		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Diethyl phthalate	ND	0.14	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Dimethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2,4-Dichlorophenol	ND	0.11	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2,4-Dimethylphenol	ND	0.11	0.29		mg/Kg	1	11/18/2019 2:31:54 PM	48729
4,6-Dinitro-2-methylphenol	ND	0.089	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2,4-Dinitrophenol	ND	0.070	0.48		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2,4-Dinitrotoluene	ND	0.11	0.48		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2,6-Dinitrotoluene	ND	0.13	0.48		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Fluoranthene	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Fluorene	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:55:00 AM
Lab ID: 1910G20-004
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Hexachloroethane	ND	0.11	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Indeno(1,2,3-cd)pyrene	ND	0.096	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Isophorone	ND	0.14	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2-Methylphenol	ND	0.11	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
3+4-Methylphenol	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
N-Nitrosodi-n-propylamine	ND	0.14	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
N-Nitrosodiphenylamine	ND	0.10	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Naphthalene	ND	0.15	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2-Nitroaniline	ND	0.14	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
4-Nitroaniline	ND	0.12	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Nitrobenzene	ND	0.13	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
4-Nitrophenol	ND	0.13	0.24		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Pentachlorophenol	ND	0.099	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Phenol	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Pyrene	ND	0.091	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Pyridine	ND	0.12	0.39		mg/Kg	1	11/18/2019 2:31:54 PM	48729
1,2,4-Trichlorobenzene	ND	0.15	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
2,4,6-Trichlorophenol	ND	0.10	0.19		mg/Kg	1	11/18/2019 2:31:54 PM	48729
Surr: 2-Fluorophenol	40.5		26.7-85.9		%Rec	1	11/18/2019 2:31:54 PM	48729
Surr: Phenol-d5	47.8		18.5-101		%Rec	1	11/18/2019 2:31:54 PM	48729
Surr: 2,4,6-Tribromophenol	41.3		35.8-85.6		%Rec	1	11/18/2019 2:31:54 PM	48729
Surr: Nitrobenzene-d5	53.4		40.8-95.2		%Rec	1	11/18/2019 2:31:54 PM	48729
Surr: 2-Fluorobiphenyl	48.1		34.7-85.2		%Rec	1	11/18/2019 2:31:54 PM	48729
Surr: 4-Terphenyl-d14	63.0		37.4-91.3		%Rec	1	11/18/2019 2:31:54 PM	48729
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0025	0.016		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Toluene	ND	0.0030	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Ethylbenzene	ND	0.0018	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Methyl tert-butyl ether (MTBE)	ND	0.0074	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2,4-Trimethylbenzene	ND	0.0028	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,3,5-Trimethylbenzene	ND	0.0030	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2-Dichloroethane (EDC)	ND	0.0032	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:55:00 AM
Lab ID: 1910G20-004 **Matrix:** SOIL **Received Date:** 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0028	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Naphthalene	ND	0.0062	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1-Methylnaphthalene	ND	0.018	0.12		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
2-Methylnaphthalene	ND	0.014	0.12		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Acetone	ND	0.026	0.47		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Bromobenzene	ND	0.0030	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Bromodichloromethane	ND	0.0028	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Bromoform	ND	0.0028	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Bromomethane	ND	0.0075	0.094		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
2-Butanone	0.083	0.036	0.31	J	mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Carbon disulfide	ND	0.010	0.31		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Carbon tetrachloride	ND	0.0030	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Chlorobenzene	ND	0.0040	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Chloroethane	ND	0.0046	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Chloroform	ND	0.0025	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Chloromethane	ND	0.0030	0.094		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
2-Chlorotoluene	ND	0.0027	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
4-Chlorotoluene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
cis-1,2-DCE	ND	0.0043	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
cis-1,3-Dichloropropene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2-Dibromo-3-chloropropane	ND	0.0032	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Dibromochloromethane	ND	0.0022	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Dibromomethane	ND	0.0034	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2-Dichlorobenzene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,3-Dichlorobenzene	ND	0.0027	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,4-Dichlorobenzene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Dichlorodifluoromethane	ND	0.0072	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,1-Dichloroethane	ND	0.0020	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,1-Dichloroethene	ND	0.012	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2-Dichloropropane	ND	0.0023	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,3-Dichloropropane	ND	0.0034	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
2,2-Dichloropropane	ND	0.010	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,1-Dichloropropene	ND	0.0028	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Hexachlorobutadiene	ND	0.0032	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
2-Hexanone	ND	0.0052	0.31		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Isopropylbenzene	ND	0.0022	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
4-Isopropyltoluene	ND	0.0026	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
4-Methyl-2-pentanone	ND	0.0059	0.31		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Methylene chloride	0.010	0.0055	0.094	J	mg/Kg	1	11/2/2019 11:55:20 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 11:55:00 AM
Lab ID: 1910G20-004
Matrix: SOIL
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0029	0.094		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
n-Propylbenzene	ND	0.0025	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
sec-Butylbenzene	ND	0.0035	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Styrene	ND	0.0024	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
tert-Butylbenzene	ND	0.0029	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,1,1,2-Tetrachloroethane	ND	0.0021	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,1,2,2-Tetrachloroethane	ND	0.0032	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Tetrachloroethene (PCE)	ND	0.0025	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
trans-1,2-DCE	ND	0.0029	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
trans-1,3-Dichloropropene	ND	0.0033	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2,3-Trichlorobenzene	ND	0.0027	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2,4-Trichlorobenzene	ND	0.0031	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,1,1-Trichloroethane	ND	0.0028	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,1,2-Trichloroethane	ND	0.0022	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Trichloroethene (TCE)	ND	0.0036	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Trichlorofluoromethane	ND	0.011	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
1,2,3-Trichloropropane	ND	0.0050	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Vinyl chloride	ND	0.0020	0.031		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Xylenes, Total	ND	0.0079	0.062		mg/Kg	1	11/2/2019 11:55:20 AM	B64178
Surr: Dibromofluoromethane	104		70-130		%Rec	1	11/2/2019 11:55:20 AM	B64178
Surr: 1,2-Dichloroethane-d4	94.9		70-130		%Rec	1	11/2/2019 11:55:20 AM	B64178
Surr: Toluene-d8	104		70-130		%Rec	1	11/2/2019 11:55:20 AM	B64178
Surr: 4-Bromofluorobenzene	86.6		70-130		%Rec	1	11/2/2019 11:55:20 AM	B64178

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103119
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 12:25:00 PM
Lab ID: 1910G20-005
Matrix: AQUEOUS
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/5/2019 8:30:47 PM	48575
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/5/2019 8:30:47 PM	48575
Surr: DNOP	92.2	0	81.5-152		%Rec	1	11/5/2019 8:30:47 PM	48575
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	0.029	0.10		mg/L	1	11/5/2019 11:04:14 PM	R64248
Chloride	ND	0.50	0.50		mg/L	1	11/5/2019 11:04:14 PM	R64248
Sulfate	ND	0.067	0.50		mg/L	1	11/5/2019 11:04:14 PM	R64248
Nitrate+Nitrite as N	ND	0.048	1.0		mg/L	5	11/5/2019 11:53:54 PM	R64248
EPA METHOD 7470: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/13/2019 11:58:35 A	48730
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **rde**	
Antimony	ND	0.0081	0.050		mg/L	1	11/25/2019 1:04:35 PM	48560
Arsenic	ND	0.015	0.020		mg/L	1	11/25/2019 4:11:01 PM	48560
Barium	ND	0.0012	0.020		mg/L	1	11/25/2019 1:04:35 PM	48560
Beryllium	0.00041	0.00025	0.0030	J	mg/L	1	11/25/2019 1:04:35 PM	48560
Cadmium	ND	0.00055	0.0020		mg/L	1	11/25/2019 1:04:35 PM	48560
Chromium	ND	0.00086	0.0060		mg/L	1	11/25/2019 1:04:35 PM	48560
Cobalt	ND	0.0012	0.0060		mg/L	1	11/25/2019 1:04:35 PM	48560
Iron	0.011	0.0093	0.020	J	mg/L	1	11/25/2019 1:04:35 PM	48560
Lead	0.0057	0.0035	0.0050		mg/L	1	11/25/2019 1:04:35 PM	48560
Manganese	ND	0.00041	0.0020		mg/L	1	11/25/2019 1:04:35 PM	48560
Nickel	ND	0.0028	0.010		mg/L	1	11/25/2019 1:04:35 PM	48560
Selenium	ND	0.035	0.050		mg/L	1	11/25/2019 1:04:35 PM	48560
Silver	ND	0.00055	0.0050		mg/L	1	11/25/2019 1:04:35 PM	48560
Vanadium	0.0020	0.00086	0.050	J	mg/L	1	11/25/2019 1:04:35 PM	48560
Zinc	ND	0.011	0.020		mg/L	1	11/25/2019 1:04:35 PM	48560
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Acenaphthylene	ND	2.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Aniline	ND	3.6	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Anthracene	ND	2.7	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Azobenzene	ND	3.3	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Benz(a)anthracene	ND	3.6	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Benzo(a)pyrene	ND	3.5	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	11/8/2019 12:54:11 PM	48585

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103119
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 12:25:00 PM
Lab ID: 1910G20-005
Matrix: AQUEOUS
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzoic acid	ND	11	20		µg/L	1	11/8/2019 12:54:11 PM	48585
Benzyl alcohol	ND	2.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	11/8/2019 12:54:11 PM	48585
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Carbazole	ND	2.9	10		µg/L	1	11/8/2019 12:54:11 PM	48585
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
4-Chloroaniline	ND	2.3	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2-Chloronaphthalene	ND	3.1	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2-Chlorophenol	ND	2.7	10		µg/L	1	11/8/2019 12:54:11 PM	48585
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Chrysene	ND	2.8	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Dibenzofuran	ND	3.2	10		µg/L	1	11/8/2019 12:54:11 PM	48585
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	11/8/2019 12:54:11 PM	48585
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	11/8/2019 12:54:11 PM	48585
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
3,3´-Dichlorobenzidine	ND	2.8	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Diethyl phthalate	ND	2.9	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Dimethyl phthalate	ND	3.2	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	11/8/2019 12:54:11 PM	48585
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	11/8/2019 12:54:11 PM	48585
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	11/8/2019 12:54:11 PM	48585
2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Fluoranthene	ND	2.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Fluorene	ND	2.9	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Hexachlorobenzene	ND	3.1	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Hexachlorobutadiene	ND	4.7	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Hexachloroethane	ND	4.8	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Isophorone	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103119
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 12:25:00 PM
Lab ID: 1910G20-005
Matrix: AQUEOUS
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
1-Methylnaphthalene	ND	3.1	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2-Methylnaphthalene	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2-Methylphenol	ND	2.9	10		µg/L	1	11/8/2019 12:54:11 PM	48585
3+4-Methylphenol	ND	3.6	10		µg/L	1	11/8/2019 12:54:11 PM	48585
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	11/8/2019 12:54:11 PM	48585
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Naphthalene	ND	4.1	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2-Nitroaniline	ND	3.2	10		µg/L	1	11/8/2019 12:54:11 PM	48585
3-Nitroaniline	ND	3.2	10		µg/L	1	11/8/2019 12:54:11 PM	48585
4-Nitroaniline	ND	2.7	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Nitrobenzene	ND	2.8	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2-Nitrophenol	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
4-Nitrophenol	ND	7.6	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Pentachlorophenol	ND	2.7	20		µg/L	1	11/8/2019 12:54:11 PM	48585
Phenanthrene	ND	2.8	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Phenol	ND	8.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Pyrene	ND	2.5	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Pyridine	ND	9.6	10		µg/L	1	11/8/2019 12:54:11 PM	48585
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	11/8/2019 12:54:11 PM	48585
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	11/8/2019 12:54:11 PM	48585
Surr: 2-Fluorophenol	0	0	15-101	S	%Rec	1	11/8/2019 12:54:11 PM	48585
Surr: Phenol-d5	0	0	15-84.6	S	%Rec	1	11/8/2019 12:54:11 PM	48585
Surr: 2,4,6-Tribromophenol	0	0	27.8-112	S	%Rec	1	11/8/2019 12:54:11 PM	48585
Surr: Nitrobenzene-d5	0	0	33-113	S	%Rec	1	11/8/2019 12:54:11 PM	48585
Surr: 2-Fluorobiphenyl	0	0	26.6-107	S	%Rec	1	11/8/2019 12:54:11 PM	48585
Surr: 4-Terphenyl-d14	0	0	18.7-148	S	%Rec	1	11/8/2019 12:54:11 PM	48585
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.17	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Toluene	ND	0.35	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Naphthalene	ND	0.28	2.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/5/2019 1:31:01 AM	R64230

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103119
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 12:25:00 PM
Lab ID: 1910G20-005
Matrix: AQUEOUS
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Acetone	ND	1.2	10		µg/L	1	11/5/2019 1:31:01 AM	R64230
Bromobenzene	ND	0.24	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Bromoform	ND	0.29	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Bromomethane	ND	0.27	3.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
2-Butanone	ND	2.1	10		µg/L	1	11/5/2019 1:31:01 AM	R64230
Carbon disulfide	ND	0.45	10		µg/L	1	11/5/2019 1:31:01 AM	R64230
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Chloroethane	ND	0.18	2.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Chloroform	ND	0.12	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Chloromethane	ND	0.32	3.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Dibromomethane	ND	0.21	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
2-Hexanone	ND	1.5	10		µg/L	1	11/5/2019 1:31:01 AM	R64230
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/5/2019 1:31:01 AM	R64230
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB103119
Project: Sanitary Sewer Lagoon
Collection Date: 10/31/2019 12:25:00 PM
Lab ID: 1910G20-005
Matrix: AQUEOUS
Received Date: 10/31/2019 4:30:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Styrene	ND	0.19	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/5/2019 1:31:01 AM	R64230
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/5/2019 1:31:01 AM	R64230
Surr: 1,2-Dichloroethane-d4	95.7	0	70-130		%Rec	1	11/5/2019 1:31:01 AM	R64230
Surr: 4-Bromofluorobenzene	91.0	0	70-130		%Rec	1	11/5/2019 1:31:01 AM	R64230
Surr: Dibromofluoromethane	108	0	70-130		%Rec	1	11/5/2019 1:31:01 AM	R64230
Surr: Toluene-d8	99.6	0	70-130		%Rec	1	11/5/2019 1:31:01 AM	R64230
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **JMR**	
Gasoline Range Organics (GRO)	ND	0.019	0.050		mg/L	1	11/5/2019 1:31:01 AM	G64230
Surr: BFB	93.7	0	70-130		%Rec	1	11/5/2019 1:31:01 AM	G64230

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

Qualifiers:

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 13, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1156998

Samples Received: 11/05/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By:

Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

- 1910G20-001B SL-6 (0-0.5') L1156998-01 5
- 1910G20-002B SL-6 (2-2.5') L1156998-02 6
- 1910G20-003B SL-6 (6-8') L1156998-03 7
- 1910G20-004B SL-6 (12-14') L1156998-04 8
- 1910G20-005F EB103119 L1156998-05 9
- 1910G20-005G EB103119 L1156998-06 10

Qc: Quality Control Summary 11

- Wet Chemistry by Method 3060A/7196A 11
- Wet Chemistry by Method 4500CN E-2011 12
- Wet Chemistry by Method 7196A 13
- Wet Chemistry by Method 9012B 14

Gl: Glossary of Terms 16

Al: Accreditations & Locations 17

Sc: Sample Chain of Custody 18

1910G20-001B SL-6 (0-0.5') L1156998-01 Solid

Collected by | Collected date/time 10/31/19 11:10 | Received date/time 11/05/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1375580	1	11/07/19 10:59	11/07/19 23:15	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:48	JER	Mt. Juliet, TN

1910G20-002B SL-6 (2-2.5') L1156998-02 Solid

Collected by | Collected date/time 10/31/19 11:25 | Received date/time 11/05/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1375580	1	11/07/19 10:59	11/07/19 23:20	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1376270	1	11/07/19 14:00	11/07/19 17:49	JER	Mt. Juliet, TN

1910G20-003B SL-6 (6-8') L1156998-03 Solid

Collected by | Collected date/time 10/31/19 11:40 | Received date/time 11/05/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1375580	1	11/07/19 11:05	11/07/19 23:21	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1378212	1	11/10/19 12:30	11/11/19 13:59	JER	Mt. Juliet, TN

1910G20-004B SL-6 (12-14') L1156998-04 Solid

Collected by | Collected date/time 10/31/19 11:55 | Received date/time 11/05/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1375580	1	11/07/19 11:05	11/07/19 23:22	ANP	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1378212	1	11/10/19 12:30	11/11/19 14:01	JER	Mt. Juliet, TN

1910G20-005F EB103119 L1156998-05 GW

Collected by | Collected date/time 10/31/19 12:25 | Received date/time 11/05/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7196A	WG1375228	1	11/05/19 12:47	11/05/19 12:47	JIC	Mt. Juliet, TN

1910G20-005G EB103119 L1156998-06 GW

Collected by | Collected date/time 10/31/19 12:05 | Received date/time 11/05/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1378771	1	11/12/19 08:29	11/12/19 18:35	JER	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 3060A/7196A

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Chromium,Hexavalent	U		0.640	2.00	1	11/07/2019 23:15	WG1375580

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.204	J	0.0390	0.250	1	11/07/2019 17:48	WG1376270

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/07/2019 23:20	WG1375580

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/07/2019 17:49	WG1376270

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/07/2019 23:21	WG1375580

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/11/2019 13:59	WG1378212

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/07/2019 23:22	WG1375580

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/11/2019 14:01	WG1378212

Wet Chemistry by Method 7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Chromium,Hexavalent	U	T8	0.00300	0.0100	1	11/05/2019 12:47	WG1375228

Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Cyanide	U		0.00180	0.00500	1	11/12/2019 18:35	WG1378771

Method Blank (MB)

(MB) R3469744-1 11/07/19 23:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1156998-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1156998-02 11/07/19 23:20 • (DUP) R3469744-3 11/07/19 23:20

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	U	0.000	1	0.000		20

L1157010-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1157010-03 11/07/19 23:23 • (DUP) R3469744-4 11/07/19 23:25

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3469744-2 11/07/19 23:10

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	22.8	94.8	80.0-120	

L1157010-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157010-04 11/07/19 23:26 • (MS) R3469744-8 11/07/19 23:46 • (MSD) R3469744-5 11/07/19 23:31

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 %
Chromium,Hexavalent	20.0	U	15.1	15.3	75.3	76.7	1	75.0-125			1.84	20

L1157010-04 Original Sample (OS) • Matrix Spike (MS)

(OS) L1157010-04 11/07/19 23:26 • (MS) R3469744-6 11/07/19 23:32

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	703	U	676	96.2	50	75.0-125	



Method Blank (MB)

(MB) R3471197-1 11/12/19 18:10

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

L1156495-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156495-01 11/12/19 18:22 • (DUP) R3471197-3 11/12/19 18:23

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

L1156826-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1156826-01 11/12/19 18:29 • (DUP) R3471197-6 11/12/19 18:30

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3471197-2 11/12/19 18:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	0.100	0.102	102	85.0-115	

L1156661-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156661-03 11/12/19 18:26 • (MS) R3471197-4 11/12/19 18:27 • (MSD) R3471197-5 11/12/19 18:28

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 %
Cyanide	0.100	ND	0.0925	0.0957	92.5	95.7	1	75.0-125			3.40	20

L1156998-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156998-06 11/12/19 18:35 • (MS) R3471197-7 11/12/19 18:36 • (MSD) R3471197-8 11/12/19 18:37

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 %
Cyanide	0.100	U	0.0951	0.0935	95.1	93.5	1	75.0-125			1.70	20

Method Blank (MB)

(MB) R3468522-1 11/05/19 12:46

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chromium,Hexavalent	U		0.00300	0.0100

L1157009-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157009-01 11/05/19 12:47 • (DUP) R3468522-3 11/05/19 12:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3468522-2 11/05/19 12:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	0.500	0.519	104	80.0-120	

L1157009-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157009-01 11/05/19 12:47 • (MS) R3468522-4 11/05/19 12:48 • (MSD) R3468522-5 11/05/19 12:49

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 %
Chromium,Hexavalent	0.500	ND	0.528	0.451	106	90.2	1	85.0-115			15.7	20

Method Blank (MB)

(MB) R3469670-1 11/07/19 17:18

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1155811-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1155811-02 11/07/19 17:23 • (DUP) R3469670-3 11/07/19 17:24

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.0785	1	0.000		20

L1157218-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157218-01 11/07/19 17:50 • (DUP) R3469670-8 11/07/19 17:51

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3469670-2 11/07/19 17:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.58	103	50.0-150	

L1156475-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156475-03 11/07/19 17:32 • (MS) R3469670-4 11/07/19 17:33 • (MSD) R3469670-5 11/07/19 17:34

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 %
Cyanide	1.67	U	1.42	1.47	85.0	88.1	1	75.0-125			3.52	20

L1156476-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1156476-01 11/07/19 17:44 • (MS) R3469670-6 11/07/19 17:45 • (MSD) R3469670-7 11/07/19 17:47

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 %
Cyanide	1.67	ND	1.47	0.0905	88.0	5.43	1	75.0-125		J3 J6	177	20

Method Blank (MB)

(MB) R3470666-1 11/11/19 13:53

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1156998-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1156998-03 11/11/19 13:59 • (DUP) R3470666-3 11/11/19 14:00

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

L1157748-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1157748-08 11/11/19 14:24 • (DUP) R3470666-7 11/11/19 14:25

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3470666-2 11/11/19 13:54

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.42	96.7	50.0-150	

L1157283-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157283-02 11/11/19 14:02 • (MS) R3470666-4 11/11/19 14:05 • (MSD) R3470666-8 11/11/19 14:30

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 %
Cyanide	1.67	ND	0.964	0.814	55.2	46.2	1	75.0-125	J6	J6	16.9	20

L1157748-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157748-02 11/11/19 14:19 • (MS) R3470666-5 11/11/19 14:20 • (MSD) R3470666-6 11/11/19 14:21

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 %
Cyanide	1.67	ND	1.31	1.41	76.4	82.2	1	75.0-125			7.11	20

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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.
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.
T8	Sample(s) received past/too close to holding time expiration.

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

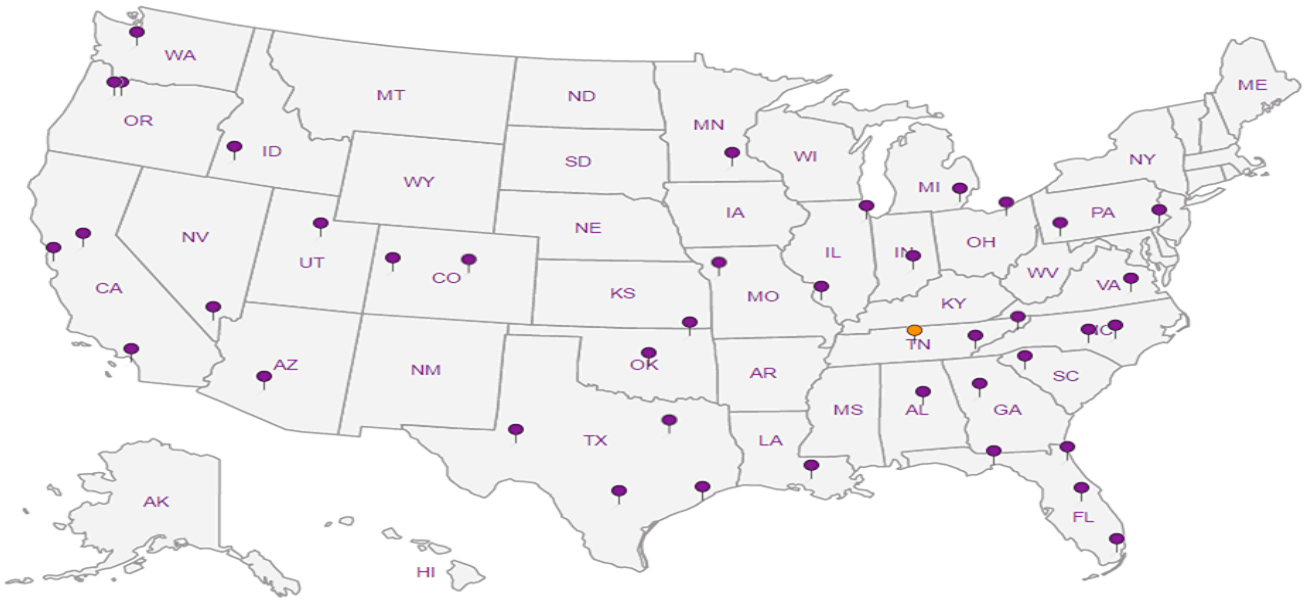
Third Party Federal Accreditations

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.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR:	ESC PACE	COMPANY: ESC PACE	PHONE: (800) 767-5859	FAX: (615) 758-5859	
ADDRESS:	12065 Lebanon Rd		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	Mt. Juliet, TN 37122				

L1156998

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	1910G20-001B	SL-6 (0-0.5')	4OZGU	Soil	10/31/2019 11:10:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6	-01
2	1910G20-002B	SL-6 (2-2.5')	4OZGU	Soil	10/31/2019 11:25:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6	-02
3	1910G20-003B	SL-6 (6-8')	4OZGU	Soil	10/31/2019 11:40:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6	-03
4	1910G20-004B	SL-6 (12-14')	4OZGU	Soil	10/31/2019 11:55:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6	-04
5	1910G20-005F	EB103119	120mL	Aqueous	10/31/2019 12:25:00 PM	1	Lv. 4 J and MDL **Cr6	-05
6	1910G20-005G	EB103119	500AMBHDPE-NAOH	Aqueous	10/31/2019 12:25:00 PM	1	Lv. 4 J and MDL** Total CN for GW	-06

A066

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By:	Date: 11/4/2019	Time: 2:31 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date: 11-05	Time: 0850

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

REPORT TRANSMITTAL DESIRED:
[ ] HARDCOPY (extra cost) [ ] FAX [ ] EMAIL [ ] ONLINE

COCSI

FOR LAB USE ONLY

Temp of samples 42-3-3.9 °C Attempt to Cool ?

Comments:

RAD SCREEN: <0.5 mR/hr

DE

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	1156998	
Cooler Received/Opened On: 11/05/19 Temperature:	3.9	
Received By: Issa Hussein		
Signature: IH		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		—	
COC Signed / Accurate?		—	
Bottles arrive intact?		—	
Correct bottles used?		—	
Sufficient volume sent?		—	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		—	

CL

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48786**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **48786**	RunNo: **64488**
Prep Date: **11/13/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207706** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: **LCS-48786**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **48786**	RunNo: **64488**
Prep Date: **11/13/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207707** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.6	0.30	1.500	0	105	90	110			
Chloride	14	1.5	15.00	0	96.0	90	110			
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	97.5	90	110			
Nitrogen, Nitrate (As N)	7.5	0.30	7.500	0	99.8	90	110			
Sulfate	29	1.5	30.00	0	96.7	90	110			

Sample ID: **1910G20-004AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-6 (12-14')**	Batch ID: **48786**	RunNo: **64488**
Prep Date: **11/13/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207717** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.2	1.5	1.500	1.819	90.1	15	137			
Chloride	26	7.5	15.00	11.64	93.0	54	141			
Nitrogen, Nitrite (As N)	3.0	1.5	3.000	0	98.6	69.3	117			
Nitrogen, Nitrate (As N)	7.1	1.5	7.500	0	94.9	54.4	142			
Sulfate	82	7.5	30.00	53.77	93.1	16.1	153			

Sample ID: **1910G20-004AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-6 (12-14')**	Batch ID: **48786**	RunNo: **64488**
Prep Date: **11/13/2019**	Analysis Date: **11/13/2019**	SeqNo: **2207718** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	3.2	1.5	1.500	1.819	91.2	15	138	0.515	20	
Chloride	26	7.5	15.00	11.64	92.6	54.5	140	0.241	20	
Nitrogen, Nitrite (As N)	3.0	1.5	3.000	0	98.5	69.5	116	0.111	20	
Nitrogen, Nitrate (As N)	7.1	1.5	7.500	0	94.9	54.8	141	0.0311	20	
Sulfate	82	7.5	30.00	53.77	95.6	16.6	153	0.939	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64248**	RunNo: **64248**
Prep Date:	Analysis Date: **11/5/2019**	SeqNo: **2198666** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	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: **R64248**	RunNo: **64248**
Prep Date:	Analysis Date: **11/5/2019**	SeqNo: **2198667** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.2	90	110			
Chloride	4.5	0.50	5.000	0	90.9	90	110			
Sulfate	9.2	0.50	10.00	0	91.9	90	110			
Nitrate+Nitrite as N	3.3	0.20	3.500	0	93.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48575**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **LCSW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198351**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.40	2.500	0	95.2	82	138			
Surr: DNOP	0.23		0.2500		91.6	81.5	152			

Sample ID: **MB-48575**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**							
Client ID: **PBW**	Batch ID: **48575**	RunNo: **64241**							
Prep Date: **11/4/2019**	Analysis Date: **11/5/2019**	SeqNo: **2198352**	Units: **mg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.51		0.5000		102	81.5	152			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48590**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **48590**	RunNo: **64266**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200931** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10	50.00	0	101	63.9	124			
Surr: DNOP	4.8		5.000		96.1	70	130			

Sample ID: **MB-48590**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **48590**	RunNo: **64266**
Prep Date: **11/5/2019**	Analysis Date: **11/6/2019**	SeqNo: **2200932** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	10		10.00		102	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **RB-II**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **A64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197112** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	980		1000		98.2	77.4	118			

Sample ID: **2.5UG GRO LCS-II**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **A64209**	RunNo: **64209**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197113** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.2	80	120			
Surr: BFB	1100		1000		112	77.4	118			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**	
Client ID: **PBS**	Batch ID: **B64178**	RunNo: **64178**	
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196117**	Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196117** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.55		0.5000		109	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.0	70	130			
Surr: Toluene-d8	0.53		0.5000		105	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.0	70	130			

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **B64178**	RunNo: **64178**
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196118** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.025	1.000	0	93.9	68	135			
Toluene	0.96	0.050	1.000	0	96.2	70	130			
Chlorobenzene	0.95	0.050	1.000	0	95.2	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**							
Client ID: **LCSS**	Batch ID: **B64178**	RunNo: **64178**							
Prep Date:	Analysis Date: **11/1/2019**	SeqNo: **2196118**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.89	0.050	1.000	0	89.5	51.1	139			
Trichloroethene (TCE)	0.86	0.050	1.000	0	86.4	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.51		0.5000		102	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197919** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	19	1.0	20.00	0	95.9	70	130			
Chlorobenzene	20	1.0	20.00	0	100	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	85.1	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	86.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.7	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.3	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197940** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.2	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.6	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.0	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48568**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202666** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48568**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202666** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.1		3.330		62.1	26.7	85.9			
Surr: Phenol-d5	2.2		3.330		66.8	18.5	101			
Surr: 2,4,6-Tribromophenol	2.4		3.330		72.4	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		72.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		71.0	34.7	85.2			
Surr: 4-Terphenyl-d14	1.3		1.670		76.1	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48568**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48568**	RunNo: **64362**
Prep Date: **11/4/2019**	Analysis Date: **11/9/2019**	SeqNo: **2202667** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.670	0	64.2	46	89.5			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	69.0	44.1	101			
2-Chlorophenol	1.9	0.20	3.330	0	56.3	47	91			
1,4-Dichlorobenzene	0.86	0.20	1.670	0	51.8	41.4	85.8			
2,4-Dinitrotoluene	0.94	0.50	1.670	0	56.0	37.4	82			
N-Nitrosodi-n-propylamine	1.1	0.20	1.670	0	64.4	47.8	92.9			
4-Nitrophenol	2.2	0.25	3.330	0	66.2	45	94.3			
Pentachlorophenol	2.0	0.40	3.330	0	58.6	31.7	76.9			
Phenol	2.0	0.20	3.330	0	61.2	49.4	92.5			
Pyrene	1.1	0.20	1.670	0	68.8	52.9	82.7			
1,2,4-Trichlorobenzene	1.0	0.20	1.670	0	61.3	43.6	98.1			
Surr: 2-Fluorophenol	1.7		3.330		51.9	26.7	85.9			
Surr: Phenol-d5	2.0		3.330		61.3	18.5	101			
Surr: 2,4,6-Tribromophenol	2.3		3.330		70.5	35.8	85.6			
Surr: Nitrobenzene-d5	1.0		1.670		62.3	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.1		1.670		64.7	34.7	85.2			
Surr: 4-Terphenyl-d14	1.2		1.670		70.3	37.4	91.3			

Sample ID: **mb-48625**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202834** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	1.7		3.330		51.7	26.7	85.9			
Surr: Phenol-d5	1.8		3.330		55.0	18.5	101			
Surr: 2,4,6-Tribromophenol	1.8		3.330		55.0	35.8	85.6			
Surr: Nitrobenzene-d5	1.1		1.670		65.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	0.96		1.670		57.3	34.7	85.2			
Surr: 4-Terphenyl-d14	0.72		1.670		42.9	37.4	91.3			

Sample ID: **lcs-48625**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202835** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	1.7		3.330		50.5	26.7	85.9			
Surr: Phenol-d5	2.0		3.330		59.4	18.5	101			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.2	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		69.1	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		69.8	34.7	85.2			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48625**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202835** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.98		1.670		58.9	37.4	91.3			

Sample ID: **mb-48729**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48729**	RunNo: **64590**
Prep Date: **11/12/2019**	Analysis Date: **11/18/2019**	SeqNo: **2211881** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	0.17	0.50								J
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48729**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48729**	RunNo: **64590**
Prep Date: **11/12/2019**	Analysis Date: **11/18/2019**	SeqNo: **2211881** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	1.6		3.330		46.8	26.7	85.9			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **mb-48729**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48729**	RunNo: **64590**
Prep Date: **11/12/2019**	Analysis Date: **11/18/2019**	SeqNo: **2211881** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Phenol-d5	1.9		3.330		56.1	18.5	101			
Surr: 2,4,6-Tribromophenol	1.8		3.330		54.9	35.8	85.6			
Surr: Nitrobenzene-d5	1.1		1.670		64.4	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.1		1.670		64.9	34.7	85.2			
Surr: 4-Terphenyl-d14	1.4		1.670		82.5	37.4	91.3			

Sample ID: **lcs4-48729**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48729**	RunNo: **64590**
Prep Date: **11/12/2019**	Analysis Date: **11/18/2019**	SeqNo: **2211882** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.20	1.670	0	72.6	46	89.5			
4-Chloro-3-methylphenol	1.2	0.50	1.670	0	74.8	44.1	101			
2-Chlorophenol	1.2	0.20	1.670	0	71.2	47	91			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	64.2	41.4	85.8			
2,4-Dinitrotoluene	1.3	0.50	1.670	0	76.7	37.4	82			
N-Nitrosodi-n-propylamine	1.2	0.20	1.670	0	69.5	47.8	92.9			
4-Nitrophenol	1.2	0.25	1.670	0	70.9	45	94.3			
Pentachlorophenol	0.90	0.40	1.670	0	54.1	31.7	76.9			
Phenol	1.2	0.20	1.670	0	72.0	49.4	92.5			
Pyrene	1.3	0.20	1.670	0	76.6	52.9	82.7			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	76.8	43.6	98.1			
Surr: 2-Fluorophenol	1.1		1.670		65.3	26.7	85.9			
Surr: Phenol-d5	1.3		1.670		77.7	18.5	101			
Surr: 2,4,6-Tribromophenol	1.0		1.670		62.7	35.8	85.6			
Surr: Nitrobenzene-d5	1.3		1.670		78.1	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.3		1.670		76.3	34.7	85.2			
Surr: 4-Terphenyl-d14	1.0		1.670		62.8	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48585**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202486** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48585**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202486** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	110		200.0		56.7	15	101			
Surr: Phenol-d5	87		200.0		43.6	15	84.6			
Surr: 2,4,6-Tribromophenol	170		200.0		84.7	27.8	112			
Surr: Nitrobenzene-d5	84		100.0		84.4	33	113			
Surr: 2-Fluorobiphenyl	81		100.0		80.6	26.6	107			
Surr: 4-Terphenyl-d14	68		100.0		68.0	18.7	148			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48585**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202487** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	71	10	100.0	0	71.3	32.2	94			
4-Chloro-3-methylphenol	150	10	200.0	0	73.1	37.7	101			
2-Chlorophenol	140	10	200.0	0	68.8	32.6	90.1			
1,4-Dichlorobenzene	61	10	100.0	0	61.3	30	87.2			
2,4-Dinitrotoluene	57	10	100.0	0	57.5	35.9	85.8			
N-Nitrosodi-n-propylamine	71	10	100.0	0	71.3	37.1	108			
4-Nitrophenol	76	10	200.0	0	38.1	22.4	86.6			
Pentachlorophenol	130	20	200.0	0	64.5	31.6	91			
Phenol	86	10	200.0	0	42.9	21.7	84.9			
Pyrene	74	10	100.0	0	73.9	46.3	103			
1,2,4-Trichlorobenzene	65	10	100.0	0	65.3	30.2	88.3			
Surr: 2-Fluorophenol	100		200.0		52.4	15	101			
Surr: Phenol-d5	83		200.0		41.7	15	84.6			
Surr: 2,4,6-Tribromophenol	150		200.0		73.8	27.8	112			
Surr: Nitrobenzene-d5	72		100.0		72.2	33	113			
Surr: 2-Fluorobiphenyl	69		100.0		69.2	26.6	107			
Surr: 4-Terphenyl-d14	63		100.0		62.7	18.7	148			

Sample ID: **lcsd-48585**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48585**	RunNo: **64352**
Prep Date: **11/5/2019**	Analysis Date: **11/8/2019**	SeqNo: **2202488** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	73	10	100.0	0	72.6	32.2	94	1.81	32.9	
4-Chloro-3-methylphenol	140	10	200.0	0	68.9	37.7	101	5.97	29.9	
2-Chlorophenol	130	10	200.0	0	66.4	32.6	90.1	3.48	28.5	
1,4-Dichlorobenzene	58	10	100.0	0	57.7	15	87.2	5.95	44.9	
2,4-Dinitrotoluene	58	10	100.0	0	58.2	35.9	85.8	1.31	28.5	
N-Nitrosodi-n-propylamine	69	10	100.0	0	69.3	37.1	108	2.87	29.9	
4-Nitrophenol	82	10	200.0	0	41.1	15	86.6	7.45	68	
Pentachlorophenol	130	20	200.0	0	63.8	31.6	91	1.03	39.5	
Phenol	81	10	200.0	0	40.4	15	84.9	6.08	44.2	
Pyrene	74	10	100.0	0	74.2	46.3	103	0.405	23.8	
1,2,4-Trichlorobenzene	64	10	100.0	0	63.6	15.7	88.3	2.67	38	
Surr: 2-Fluorophenol	98		200.0		49.1	15	101	0	0	
Surr: Phenol-d5	76		200.0		38.1	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	140		200.0		69.8	27.8	112	0	0	
Surr: Nitrobenzene-d5	67		100.0		66.9	33	113	0	0	
Surr: 2-Fluorobiphenyl	68		100.0		68.2	26.6	107	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **lcsd-48585** SampType: **LCSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02** Batch ID: **48585** RunNo: **64352**
Prep Date: **11/5/2019** Analysis Date: **11/8/2019** SeqNo: **2202488** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	62		100.0		62.3	18.7	148	0	0	

Sample ID: **mb-48694** SampType: **MBLK** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW** Batch ID: **48694** RunNo: **64521**
Prep Date: **11/11/2019** Analysis Date: **11/14/2019** SeqNo: **2209168** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	100		200.0		51.1	15	101			
Surr: Phenol-d5	88		200.0		43.8	15	84.6			
Surr: 2,4,6-Tribromophenol	140		200.0		71.8	27.8	112			
Surr: Nitrobenzene-d5	79		100.0		79.3	33	113			
Surr: 2-Fluorobiphenyl	77		100.0		77.0	26.6	107			
Surr: 4-Terphenyl-d14	48		100.0		48.4	18.7	148			

Sample ID: **lcs-48694** SampType: **LCS** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW** Batch ID: **48694** RunNo: **64521**
Prep Date: **11/11/2019** Analysis Date: **11/14/2019** SeqNo: **2209172** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	95		200.0		47.3	15	101			
Surr: Phenol-d5	81		200.0		40.6	15	84.6			
Surr: 2,4,6-Tribromophenol	120		200.0		59.6	27.8	112			
Surr: Nitrobenzene-d5	71		100.0		70.8	33	113			
Surr: 2-Fluorobiphenyl	73		100.0		73.1	26.6	107			
Surr: 4-Terphenyl-d14	44		100.0		43.9	18.7	148			

Sample ID: **lcsd-48694** SampType: **LCSD** TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02** Batch ID: **48694** RunNo: **64521**
Prep Date: **11/11/2019** Analysis Date: **11/14/2019** SeqNo: **2209193** Units: **%Rec**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	110		200.0		52.6	15	101	0	0	
Surr: Phenol-d5	90		200.0		44.9	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		67.1	27.8	112	0	0	
Surr: Nitrobenzene-d5	78		100.0		78.4	33	113	0	0	
Surr: 2-Fluorobiphenyl	74		100.0		73.7	26.6	107	0	0	
Surr: 4-Terphenyl-d14	44		100.0		44.2	18.7	148	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48710**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **48710**	RunNo: **64406**
Prep Date: **11/11/2019**	Analysis Date: **11/11/2019**	SeqNo: **2204327** Units: **mg/Kg**

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

Sample ID: **LCSLL-48710**	SampType: **LCSLL**	TestCode: **EPA Method 7471: Mercury**
Client ID: **BatchQC**	Batch ID: **48710**	RunNo: **64406**
Prep Date: **11/11/2019**	Analysis Date: **11/11/2019**	SeqNo: **2204328** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0078	0.033	0.006660	0	117	70	130			J

Sample ID: **LCS-48710**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **48710**	RunNo: **64406**
Prep Date: **11/11/2019**	Analysis Date: **11/11/2019**	SeqNo: **2204329** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48730**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206939** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-48730**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206940** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0044	0.00020	0.005000	0	87.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48604**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **48604**	RunNo: **64594**
Prep Date: **11/5/2019**	Analysis Date: **11/18/2019**	SeqNo: **2212240** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Arsenic	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	0.050	0.10								J
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	2.1	2.5								J
Lead	0.25	0.25								
Manganese	0.050	0.10								J
Nickel	0.25	0.50								J
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID: **LCS-48604**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **48604**	RunNo: **64594**
Prep Date: **11/5/2019**	Analysis Date: **11/18/2019**	SeqNo: **2212242** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	24	2.5	25.00	0	97.6	80	120			
Arsenic	24	2.5	25.00	0	94.0	80	120			
Barium	24	0.10	25.00	0	95.4	80	120			
Beryllium	24	0.15	25.00	0	97.4	80	120			
Cadmium	24	0.10	25.00	0	95.8	80	120			
Chromium	24	0.30	25.00	0	94.0	80	120			
Cobalt	23	0.30	25.00	0	92.0	80	120			
Iron	29	2.5	25.00	0	115	80	120			
Lead	24	0.25	25.00	0	97.4	80	120			
Manganese	24	0.10	25.00	0	94.0	80	120			
Nickel	23	0.50	25.00	0	92.8	80	120			
Silver	5.1	0.25	5.000	0	102	80	120			
Vanadium	24	2.5	25.00	0	96.8	80	120			
Zinc	23	2.5	25.00	0	91.2	80	120			

Sample ID: **1910G20-002AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-6 (2-2.5')**	Batch ID: **48604**	RunNo: **64665**
Prep Date: **11/5/2019**	Analysis Date: **11/20/2019**	SeqNo: **2215497** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **1910G20-002AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-6 (2-2.5')** Batch ID: **48604** RunNo: **64665**
Prep Date: **11/5/2019** Analysis Date: **11/20/2019** SeqNo: **2215497** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	2.8	5.0	24.78	0	11.4	75	125			JS
Barium	260	0.20	24.78	178.1	321	75	125			S
Beryllium	23	0.30	24.78	0.7862	90.2	75	125			
Cadmium	22	0.20	24.78	0	87.3	75	125			
Chromium	31	0.59	24.78	6.889	96.2	75	125			
Cobalt	25	0.59	24.78	3.710	85.3	75	125			
Manganese	230	0.20	24.78	210.3	99.0	75	125			
Nickel	28	0.99	24.78	6.462	88.4	75	125			
Silver	3.6	0.50	4.955	0	72.6	75	125			S
Vanadium	41	5.0	24.78	16.07	99.4	75	125			
Zinc	33	5.0	24.78	11.84	86.3	75	125			

Sample ID: **1910G20-002AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-6 (2-2.5')** Batch ID: **48604** RunNo: **64665**
Prep Date: **11/5/2019** Analysis Date: **11/20/2019** SeqNo: **2215498** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	3.2	4.8	24.02	0	13.2	75	125	11.3	20	JS
Barium	470	0.19	24.02	178.1	1210	75	125	58.1	20	RS
Beryllium	24	0.29	24.02	0.7862	94.6	75	125	1.60	20	
Cadmium	22	0.19	24.02	0	91.9	75	125	2.04	20	
Chromium	31	0.58	24.02	6.889	99.1	75	125	0.186	20	
Cobalt	25	0.58	24.02	3.710	89.9	75	125	1.82	20	
Manganese	230	0.19	24.02	210.3	81.4	75	125	2.14	20	
Nickel	29	0.96	24.02	6.462	92.3	75	125	0.893	20	
Silver	3.7	0.48	4.804	0	77.1	75	125	2.92	20	
Vanadium	41	4.8	24.02	16.07	104	75	125	1.07	20	
Zinc	33	4.8	24.02	11.84	88.4	75	125	0.418	20	

Sample ID: **1910G20-002APS** SampType: **PS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-6 (2-2.5')** Batch ID: **48604** RunNo: **64665**
Prep Date: Analysis Date: **11/20/2019** SeqNo: **2215499** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	42	5.0	49.75	0	84.6	80	120			
Barium	210	0.20	49.75	178.1	56.6	80	120			S
Silver	8.6	0.50	9.950	0	86.1	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**
18-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **1910G20-002AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-6 (2-2.5')** Batch ID: **48604** RunNo: **64693**
Prep Date: **11/5/2019** Analysis Date: **11/21/2019** SeqNo: **2216960** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	23	5.0	24.78	0	92.9	75	125			

Sample ID: **1910G20-002AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-6 (2-2.5')** Batch ID: **48604** RunNo: **64693**
Prep Date: **11/5/2019** Analysis Date: **11/21/2019** SeqNo: **2216961** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	4.8	24.02	0	101	75	125	5.71	20	

Sample ID: **MB-48977** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **48977** RunNo: **64789**
Prep Date: **11/22/2019** Analysis Date: **11/25/2019** SeqNo: **2220399** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.25								
Selenium	ND	2.5								

Sample ID: **LCS-48977** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **48977** RunNo: **64789**
Prep Date: **11/22/2019** Analysis Date: **11/25/2019** SeqNo: **2220401** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	23	0.25	25.00	0	93.9	80	120			
Selenium	21	2.5	25.00	0	83.2	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64273**
Prep Date: **11/4/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199639** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.050								
Arsenic	ND	0.020								
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	0.0012	0.050								J
Zinc	ND	0.020								

Sample ID: **LCS-48560**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48560**	RunNo: **64273**
Prep Date: **11/4/2019**	Analysis Date: **11/6/2019**	SeqNo: **2199644** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.51	0.050	0.5000	0	101	80	120			
Arsenic	0.49	0.020	0.5000	0	98.3	80	120			
Barium	0.48	0.020	0.5000	0	95.7	80	120			
Beryllium	0.51	0.0030	0.5000	0	103	80	120			
Cadmium	0.51	0.0020	0.5000	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	98.4	80	120			
Cobalt	0.51	0.0060	0.5000	0	101	80	120			
Iron	0.51	0.020	0.5000	0	103	80	120			
Manganese	0.50	0.0020	0.5000	0	100	80	120			
Nickel	0.49	0.010	0.5000	0	97.7	80	120			
Silver	0.093	0.0050	0.1000	0	92.7	80	120			
Vanadium	0.50	0.050	0.5000	0	101	80	120			
Zinc	0.49	0.020	0.5000	0	98.5	80	120			

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64389**
Prep Date: **11/4/2019**	Analysis Date: **11/11/2019**	SeqNo: **2203945** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48560**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48560**	RunNo: **64389**
Prep Date: **11/4/2019**	Analysis Date: **11/11/2019**	SeqNo: **2203947** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.50	0.0050	0.5000	0	99.4	80	120			

Sample ID: **MB-48560**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48560**	RunNo: **64501**
Prep Date: **11/4/2019**	Analysis Date: **11/13/2019**	SeqNo: **2208278** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: **LCS-48560**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48560**	RunNo: **64501**
Prep Date: **11/4/2019**	Analysis Date: **11/13/2019**	SeqNo: **2208283** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.51	0.0050	0.5000	0	102	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1910G20**

18-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **2.5ug gro lcs**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197977** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.6	70	130			
Surr: BFB	9.5		10.00		95.5	70	130			

Sample ID: **rb1**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G64230**	RunNo: **64230**
Prep Date:	Analysis Date: **11/4/2019**	SeqNo: **2197979** 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	9.3		10.00		93.0	70	130			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1910G20** RcptNo: 1

Received By: **Leah Baca** **10/31/2019 4:30:00 PM** Leah Baca

Completed By: **Leah Baca** **10/31/2019 4:54:49 PM** Leah Baca

Reviewed By: ENM 11/1/19

Chain of Custody

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

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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

of preserved bottles checked for pH: 2
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 11/1/19

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	2.6	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6 - .0 = 2.6

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. 1910620	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B	8270	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/31/19	1110	Soil	SL-6 (0-0.5')	8 oz jar - 2	Neat				X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1125		SL-6 (2-2.5')	8ozJAR-2	NEAT				X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MEOH											X						
	1140		SL-6 (6-8')	8ozJAR-2	NEAT				X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MEOH											X						

Date	Time	Relinquished by:	Received by:	Date	Time
10/31/19	1340				
10/31/19	1630			10/31/19	1630

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6 - CF 0 = 2.6

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B - [redacted]	8270 - [redacted]	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
10/31/19	1155	Soil	SL-6 (12-14')	8 oz jar - 2	Neat				X							X	X	X	X			
↓	↓	↓	↓	4 oz jar - 1	Neat															X		
↓	↓	↓	↓	Vial - 2	MeOH											X						

Date	Time	Relinquished by:	Received by:	Date	Time
10/31/19	1340				
10/31/19	1630			10/31/19	1630

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 2.6 - CF = 2.6C

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total	Chromium VI	Anions	Cyanide			Air Bubbles (Y or N)
10/31/19	1225	Water	EB103119	40ml voa - 5	HCl				X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber - 1	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			

Date	Time	Relinquished by:	Received by:	Date	Time
10/31/19	1340				
10/31/19	1630			10/31/19	1630

Remarks: See attached sheet for Analytical Methods and Target Analytes.

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

November 05, 2019

Brian Moore

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

RE: Sanitary Sewer Lagoon OrderNo.: 1911005

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 5 sample(s) on 11/1/2019 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

Aerobiology Laboratory Associates, Incorporated
Expertise Since 1997

Certificate of Analysis
AIHA-LAP EMLAP# 192683

780 Simms St
Suite 104
Golden, Colorado 80401
(866) 620-9348
www.aerobiology.net

Hall Environmental Analysis Laboratory, Inc.
4901 Hawkins NE
Albuquerque, New Mexico 87109
Attn: Andy Freeman
Project: **Sanitary Sewer Lagoon**
Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 10/31/2019
Date Received: 11/01/2019
Date Analyzed: 11/02/2019
Date Reported: 11/04/2019
Project ID: 19050912

Client Sample #: 1
Lab Sample #: 19050912-001
Sample Location: SL-6 (0-0.5')
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample positive for total coliforms and negative for Escherichia coli.**
Mass Analyzed: **10 (g)**
MRL:**1 CFU/10 g**

Client Sample #: 2
Lab Sample #: 19050912-002
Sample Location: SL-6 (2-2.5')
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL:**1 CFU/10 g**

Client Sample #: 3
Lab Sample #: 19050912-003
Sample Location: SL-6 (6-8')
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL:**1 CFU/10 g**

Client Sample #: 4
Lab Sample #: 19050912-004
Sample Location: SL-6 (12-14')
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL:**1 CFU/10 g**

Client Sample #: 5
Lab Sample #: 19050912-005
Sample Location: Water EB103119B
Test: 1010, Water, Potable, E.coli/total coliforms Colisure: SOP 2.28 SM 9223
Results: **Water negative for total coliforms and negative for Escherichia coli at 24 hours.**
Liquid Volume: **100 (mL)**
MRL: **1 CFU/100mL**

Aerobiology Laboratory Associates, Incorporated
Expertise Since 1997

Certificate of Analysis
AIHA-LAP EMLAP# 192683

780 Simms St
Suite 104
Golden, Colorado 80401
(866) 620-9348
www.aerobiology.net

Hall Environmental Analysis Laboratory, Inc.
4901 Hawkins NE
Albuquerque, New Mexico 87109
Attn: Andy Freeman
Project: **Sanitary Sewer Lagoon**
Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 10/31/2019
Date Received: 11/01/2019
Date Analyzed: 11/02/2019
Date Reported: 11/04/2019
Project ID: 19050912

Signature Page

Aerobiology Laboratory shall be responsible for all the information provided in the report, except when information is provided by the customer. Aerobiology Laboratory is not responsible for the sampling activity. The report shall not be reproduced except in full without approval of the laboratory can provide assurance that parts of a report are not taken out of context.

1. Aerobiology Laboratory Associates Incorporated maintains accreditation with the American Industrial Hygiene Association Environmental Microbiology Laboratory Accreditation Program (EMLAP) in compliance with ISO 17025:2017.
2. Aerobiology Laboratory Associates Incorporated maintains accreditation and certification with local and state agencies where our laboratories are located.
3. Aerobiology Laboratory Associates Incorporated is certified by the state of Virginia as a Small, Woman and Minority (SWaM) business.
4. Aerobiology's New Jersey location has been approved by the New York Department of Health (ELAP) to analyze Legionella samples for POTABLE WATER and NON-POTABLE WATER.
5. Aerobiology Laboratory Associates Incorporated is a for-profit, privately held company, incorporated in the state of Virginia in 1997.
6. The results in this report are related to this project and these samples only.

Suzanne S. Blevins, B.S., SM (ASCP)
Laboratory Director

© 2019 Aerobiology Laboratory Associates, Inc. All rights reserved.

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: MARATHON GALLUP Work Order Number: 1911005 RcptNo: 1

Received By: Anne Thorne 11/1/2019 9:30:00 AM

Completed By: Anne Thorne 11/1/2019 10:03:03 AM

Reviewed By: 11/01/19

Chain of Custody

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

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 ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: 11/01/19

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:

DUE TO SHORT HOLD TIME, CLIENT SHIPPED SAMPLES DIRECTLY TO AERO BIOLOGY, CUSTODY SEALS ON SAMPLE CONTAINERS/at 11/1/19

17. **Cooler Information**

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9745

Email: bmoore1@marathonpetroleum.com

QA/QC Package:
☐ Standard X Level 4 (Full Validation)

☐ Other

X EDD Type: EXCEL

Turn-Around Time:
X Standard ☐ Rush

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 919-551-7055

On Ice: X Yes ☐ No

Sample Temperature:

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No
5/1/19	1110	Soil	SL-6 (0-0.5')	4oz Jar-1	Heat	-201
	1125		SL-6 (2-2.5')			-202
	1140		SL-6 (6-8')			-203
	1155	↓	SL-6 (12-14')			-204
↓	1210	Water	EB 05/01/19 B	↓	↓	-205

Date: 5/1/19 Time: 1330 Relinquished by:

Received by: Date: 5/2/19 Time: 0730

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

BTEX + MTBE + TMB (8021)	BTEX + MTBE + TPH (Gas only)	TPH (8015B (GRO / DRO / MRO))	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIM)	RCRA 8 Metals	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Total Coliform and E. Coli (Present/Absent)	Total Coliform (Present/Absent)	E. coli (Present/Absent)
												X	X
												X	X
												X	X
												X	X
												X	X

Remarks: See attached sheet for Analytical Methods and Target Analytes.

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

November 08, 2019

Brian Moore

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX

RE: Sanitary Sewer Lagoon OrderNo.: 1911103

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 10 sample(s) on 11/4/2019 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

Aerobiology Laboratory Associates, Incorporated
Expertise Since 1997

Certificate of Analysis
AIHA-LAP EMLAP# 192683

780 Simms St
Suite 104
Golden, Colorado 80401
(866) 620-9348
www.aerobiology.net

Hall Environmental Analysis Laboratory, Inc.
4901 Hawkins NE
Albuquerque, New Mexico 87109
Attn: Andy Freeman
Project: **Sanitary Sewer Lagoon**
Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 11/04/2019
Date Received: 11/05/2019
Date Analyzed: 11/06/2019
Date Reported: 11/06/2019
Project ID: 19051278

Client Sample #: SL-7 (0-0.5')
Lab Sample #: 19051278-001
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: SL-7 (2-2.5')
Lab Sample #: 19051278-002
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: SL-7 (2.5-4')
Lab Sample #: 19051278-003
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: SL-7 (10-12')
Lab Sample #: 19051278-004
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: SL-8 (0-0.5')
Lab Sample #: 19051278-005
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample positive for total coliforms and negative for Escherichia coli.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: SL-8 (2-2.5')
Lab Sample #: 19051278-006
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Aerobiology Laboratory Associates, Incorporated
Expertise Since 1997

Certificate of Analysis
AIHA-LAP EMLAP# 192683

780 Simms St
Suite 104
Golden, Colorado 80401
(866) 620-9348
www.aerobiology.net

Hall Environmental Analysis Laboratory, Inc.
4901 Hawkins NE
Albuquerque, New Mexico 87109
Attn: Andy Freeman
Project: **Sanitary Sewer Lagoon**
Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 11/04/2019
Date Received: 11/05/2019
Date Analyzed: 11/06/2019
Date Reported: 11/06/2019
Project ID: 19051278

Client Sample #: SL-8 (2.5-4')
Lab Sample #: 19051278-007
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: SL-8 (12-14')
Lab Sample #: 19051278-008
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: DUPO3
Lab Sample #: 19051278-009
Sample Location:
Test: 1013, Bulk, Total E.coli/coliforms Colisure (P/A)
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Mass Analyzed: **10 (g)**
MRL: **1 CFU/10g**

Client Sample #: EB110419B
Lab Sample #: 19051278-010
Sample Location:
Test: 1010, Water, Potable, E.coli/total coliforms Colisure: SOP 2.28 SM 9223
Results: **Sample negative for total coliforms and negative for Escherichia coli at 24 hours.**
Liquid Volume: **100 (mL)**
MRL: **1 CFU/100mL**

Aerobiology Laboratory Associates, Incorporated
Expertise Since 1997

780 Simms St
Suite 104
Golden, Colorado 80401
(866) 620-9348
www.aerobiology.net

Certificate of Analysis
AIHA-LAP EMLAP# 192683

Hall Environmental Analysis Laboratory, Inc.
4901 Hawkins NE
Albuquerque, New Mexico 87109
Attn: Andy Freeman
Project: **Sanitary Sewer Lagoon**
Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 11/04/2019
Date Received: 11/05/2019
Date Analyzed: 11/06/2019
Date Reported: 11/06/2019
Project ID: 19051278

Signature Page

Aerobiology Laboratory shall be responsible for all the information provided in the report, except when information is provided by the customer. Aerobiology Laboratory is not responsible for the sampling activity. The report shall not be reproduced except in full without approval of the laboratory can provide assurance that parts of a report are not taken out of context.

1. Aerobiology Laboratory Associates Incorporated maintains accreditation with the American Industrial Hygiene Association Environmental Microbiology Laboratory Accreditation Program (EMLAP) in compliance with ISO 17025:2017.
2. Aerobiology Laboratory Associates Incorporated maintains accreditation and certification with local and state agencies where our laboratories are located.
3. Aerobiology Laboratory Associates Incorporated is certified by the state of Virginia as a Small, Woman and Minority (SWaM) business.
4. Aerobiology's New Jersey location has been approved by the New York Department of Health (ELAP) to analyze Legionella samples for POTABLE WATER and NON-POTABLE WATER.
5. Aerobiology Laboratory Associates Incorporated is a for-profit, privately held company, incorporated in the state of Virginia in 1997.
6. The results in this report are related to this project and these samples only.

Suzanne S. Blevins, B.S., SM (ASCP)
Laboratory Director

© 2019 Aerobiology Laboratory Associates, Inc. All rights reserved.

1905278

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:
☐ Standard X Level 4 (Full Validation)
☐ Other _____
X EDD (Type) EXCEL

Turn-Around Time:
X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**
On Ice: ☐ Yes ☐ No
Sample Temperature:

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
11/4/19	1005	~~Soil~~ Water	SL-7 (0-0.5')	~~450~~ 100 ml - plastic - 1	Neat														X	X		
	1025		SL-7 (2-2.5')																X	X		
	1040		SL-7 (2.5-4')																X	X		
	1050		SL-7 (10-12')																X	X		
	1235		SL-8 (0-0.5')																X	X		
	1245		SL-8 (2-2.5')																X	X		
	1255		SL-8 (2.5-4')																X	X		
	1305		SL-8 (12-14')																X	X		
	—		DUP03																X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/4/19	1320		MW	11/5/19	0945
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Aerobiology Laboratory
780 Simms St. Suite 104
Golden, CO 80401

1905278 2 OF 2

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
11/4/19	1310	Water	EB110419B	~~150~~ 100 ml - plastic - 1	Neat														X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/4/19	1320				
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Aerobiology Laboratory
780 Simms St. Suite 104
Golden, CO 80401

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: MARATHON GALLUP Work Order Number: 1911103 RcptNo: 1

Received By: Anne Thorne 11/4/2019 2:00:00 PM Anne Thorne
Completed By: Anne Thorne 11/5/2019 9:05:49 AM Anne Thorne
Reviewed By: AT 11/05/19

Chain of Custody

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

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 ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

of preserved bottles checked for pH: _____ (<2 or >12 unless noted)
Adjusted? _____
Checked by: AT 11/05/19

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:

DUE TO SHORT HOLD TIME, CLIENT SHIPPED SAMPLES DIRECTLY TO AEROBIOLOGY-CO, CUSTODAY SEALS INTACT ON SAMPLE BOTTLES./at 11/5/19

17. **Cooler Information**

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9745

Email: timpayne1@marathonpetroleum.com

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

☒ EDD (Type): EXCEL

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 918-561-7055

On Ice: ☐ Yes ☐ No

Sample Temperature:

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1911105	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TMB's (8260)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270SIM)	RCRA 8 Metals	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cations	Total Coliform	E. coli	Air Bubbles (Y or N)
11/4/19	1005	Soil/Water	SL-7 (0-0.5')	4oz jar - 40ml - plastic - 1	Neat	-001													X	X	
	1025		SL-7 (2-2.5')			-002													X	X	
	1040		SL-7 (2.5-4')			-003													X	X	
	1050		SL-7 (10-12)			-004													X	X	
	1235		SL-8 (0-0.5)			-005													X	X	
	1245		SL-8 (2-2.5')			-006													X	X	
	1255		SL-8 (2.5-4')			-007													X	X	
	1305		SL-8 (12-14')			-008													X	X	
↓	—	↓	DUP03	↓	↓	-009													X	X	

Relinquished by: [signature] Date: 11/4/19 Time: 1520

Received by: [signature] Date: 11/5/19 Time: 0900

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Analysis Request

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9745

email or Fax#: [illegible]

QA/QC Package:

□ Standard X Level 4 (Full Validation)

Accreditation:

□ Other

X EDD (Type) EXCEL

Turn-Around Time:

X Standard □ Rush

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 919-581-7058

On Ice: □ Yes □ No

Sample Temperature:

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. [illegible]	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
11/4/19	1510	Water	EB110419B	250 ml plastic - 1	Neat	210													X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/4/19	1520	[signature]	[signature]	11/5/19	[illegible]

Remarks: See attached sheet for Analytical Methods and Target Analytes.

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

December 10, 2019

Brian Moore

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX:

RE: Sanitary Sewer Lagoon OrderNo.: 1911107

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 11 sample(s) on 11/4/2019 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: Marathon
Client Sample ID: SL-7 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:05:00 AM
Lab ID: 1911107-001 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	89	9.3	46		mg/Kg	5	11/11/2019 12:25:41 P	48616
Motor Oil Range Organics (MRO)	300	230	230		mg/Kg	5	11/11/2019 12:25:41 P	48616
Surr: DNOP	110	0	70-130		%Rec	5	11/11/2019 12:25:41 P	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.86	2.8		mg/Kg	1	11/6/2019 9:07:25 AM	G64279
Surr: BFB	98.9	0	77.4-118		%Rec	1	11/6/2019 9:07:25 AM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.5	1.5	1.5		mg/Kg	5	11/14/2019 12:26:38 P	48795
Chloride	120	7.5	7.5		mg/Kg	5	11/14/2019 12:26:38 P	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 12:26:38 P	48795
Nitrogen, Nitrate (As N)	21	1.5	1.5		mg/Kg	5	11/14/2019 12:26:38 P	48795
Sulfate	4400	75	75		mg/Kg	50	11/15/2019 12:21:52 P	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.26	0.0018	0.033		mg/Kg	1	11/19/2019 3:50:35 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.73	4.9		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Arsenic	ND	2.8	4.9		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Barium	290	0.046	0.20		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Beryllium	0.65	0.018	0.30		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Cadmium	ND	0.048	0.20		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Chromium	12	0.16	0.59		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Cobalt	2.4	0.21	0.59		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Iron	8900	72	250		mg/Kg	100	11/22/2019 4:46:17 PM	48651
Lead	21	0.48	0.49		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Manganese	65	0.041	0.20		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Nickel	5.7	0.29	0.99		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Selenium	ND	2.5	4.9		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Silver	ND	0.063	0.49		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Vanadium	15	0.13	4.9		mg/Kg	2	11/22/2019 4:37:00 PM	48651
Zinc	96	0.78	4.9		mg/Kg	2	11/22/2019 4:37:00 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.56	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Acenaphthylene	ND	0.51	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Aniline	ND	0.60	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Anthracene	ND	0.50	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Azobenzene	ND	0.65	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Benz(a)anthracene	ND	0.45	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:05:00 AM
Lab ID: 1911107-001
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.41	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Benzo(b)fluoranthene	ND	0.41	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Benzo(g,h,i)perylene	ND	0.40	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Benzo(k)fluoranthene	ND	0.42	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Benzoic acid	ND	0.48	2.3		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Benzyl alcohol	ND	0.58	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Bis(2-chloroethoxy)methane	ND	0.69	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Bis(2-chloroethyl)ether	ND	0.57	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Bis(2-chloroisopropyl)ether	ND	0.53	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Bis(2-ethylhexyl)phthalate	ND	0.67	2.3		mg/Kg	1	11/10/2019 4:57:39 PM	48625
4-Bromophenyl phenyl ether	ND	0.55	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Butyl benzyl phthalate	ND	0.48	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Carbazole	ND	0.55	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
4-Chloro-3-methylphenol	ND	0.71	2.3		mg/Kg	1	11/10/2019 4:57:39 PM	48625
4-Chloroaniline	ND	0.66	2.3		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2-Chloronaphthalene	ND	0.58	1.2		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2-Chlorophenol	ND	0.58	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
4-Chlorophenyl phenyl ether	ND	0.51	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Chrysene	ND	0.41	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Di-n-butyl phthalate	ND	0.69	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Di-n-octyl phthalate	ND	0.47	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Dibenz(a,h)anthracene	ND	0.42	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Dibenzofuran	ND	0.61	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
1,2-Dichlorobenzene	ND	0.56	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
1,3-Dichlorobenzene	ND	0.49	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
1,4-Dichlorobenzene	ND	0.50	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
3,3´-Dichlorobenzidine	ND	0.41	1.2		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Diethyl phthalate	ND	0.66	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Dimethyl phthalate	ND	0.62	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2,4-Dichlorophenol	ND	0.54	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2,4-Dimethylphenol	ND	0.51	1.4		mg/Kg	1	11/10/2019 4:57:39 PM	48625
4,6-Dinitro-2-methylphenol	ND	0.43	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2,4-Dinitrophenol	ND	0.34	2.3		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2,4-Dinitrotoluene	ND	0.55	2.3		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2,6-Dinitrotoluene	ND	0.61	2.3		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Fluoranthene	ND	0.52	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Fluorene	ND	0.53	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Hexachlorobenzene	ND	0.58	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Hexachlorobutadiene	ND	0.65	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:05:00 AM
Lab ID: 1911107-001 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.53	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Hexachloroethane	ND	0.52	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Indeno(1,2,3-cd)pyrene	ND	0.46	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Isophorone	ND	0.68	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
1-Methylnaphthalene	ND	0.70	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2-Methylnaphthalene	ND	0.68	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2-Methylphenol	ND	0.55	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
3+4-Methylphenol	ND	0.57	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
N-Nitrosodi-n-propylamine	ND	0.66	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
N-Nitrosodiphenylamine	ND	0.49	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Naphthalene	ND	0.70	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2-Nitroaniline	ND	0.66	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
3-Nitroaniline	ND	0.64	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
4-Nitroaniline	ND	0.59	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Nitrobenzene	ND	0.64	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2-Nitrophenol	ND	0.64	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
4-Nitrophenol	ND	0.63	1.2		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Pentachlorophenol	ND	0.48	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Phenanthrene	ND	0.50	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Phenol	ND	0.58	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Pyrene	ND	0.44	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Pyridine	ND	0.56	1.9		mg/Kg	1	11/10/2019 4:57:39 PM	48625
1,2,4-Trichlorobenzene	ND	0.72	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2,4,5-Trichlorophenol	ND	0.60	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
2,4,6-Trichlorophenol	ND	0.49	0.93		mg/Kg	1	11/10/2019 4:57:39 PM	48625
Surr: 2-Fluorophenol	43.2		26.7-85.9		%Rec	1	11/10/2019 4:57:39 PM	48625
Surr: Phenol-d5	53.2		18.5-101		%Rec	1	11/10/2019 4:57:39 PM	48625
Surr: 2,4,6-Tribromophenol	62.9		35.8-85.6		%Rec	1	11/10/2019 4:57:39 PM	48625
Surr: Nitrobenzene-d5	53.7		40.8-95.2		%Rec	1	11/10/2019 4:57:39 PM	48625
Surr: 2-Fluorobiphenyl	59.9		34.7-85.2		%Rec	1	11/10/2019 4:57:39 PM	48625
Surr: 4-Terphenyl-d14	39.9		37.4-91.3		%Rec	1	11/10/2019 4:57:39 PM	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0023	0.014		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Toluene	ND	0.0027	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Ethylbenzene	ND	0.0017	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Methyl tert-butyl ether (MTBE)	ND	0.0068	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2,4-Trimethylbenzene	ND	0.0026	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,3,5-Trimethylbenzene	ND	0.0028	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2-Dichloroethane (EDC)	ND	0.0029	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:05:00 AM
Lab ID: 1911107-001
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0026	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Naphthalene	ND	0.0057	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1-Methylnaphthalene	ND	0.016	0.11		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Acetone	ND	0.024	0.43		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Bromobenzene	ND	0.0027	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Bromodichloromethane	ND	0.0026	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Bromoform	ND	0.0026	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Bromomethane	ND	0.0069	0.085		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
2-Butanone	ND	0.033	0.28		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Carbon disulfide	ND	0.0094	0.28		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Carbon tetrachloride	ND	0.0027	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Chlorobenzene	ND	0.0036	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Chloroethane	ND	0.0042	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Chloroform	ND	0.0023	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Chloromethane	ND	0.0027	0.085		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
2-Chlorotoluene	ND	0.0025	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
4-Chlorotoluene	ND	0.0023	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
cis-1,2-DCE	ND	0.0039	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
cis-1,3-Dichloropropene	ND	0.0024	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2-Dibromo-3-chloropropane	ND	0.0029	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Dibromochloromethane	ND	0.0020	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Dibromomethane	ND	0.0031	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2-Dichlorobenzene	ND	0.0023	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,3-Dichlorobenzene	ND	0.0025	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,4-Dichlorobenzene	ND	0.0024	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Dichlorodifluoromethane	ND	0.0066	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,1-Dichloroethane	ND	0.0018	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,1-Dichloroethene	ND	0.011	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2-Dichloropropane	ND	0.0021	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,3-Dichloropropane	ND	0.0031	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
2,2-Dichloropropane	ND	0.0093	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,1-Dichloropropene	ND	0.0026	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Hexachlorobutadiene	ND	0.0029	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
2-Hexanone	ND	0.0047	0.28		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Isopropylbenzene	ND	0.0021	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
4-Isopropyltoluene	ND	0.0024	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
4-Methyl-2-pentanone	ND	0.0054	0.28		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Methylene chloride	ND	0.0050	0.085		mg/Kg	1	11/8/2019 4:15:19 PM	S64339

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:05:00 AM
Lab ID: 1911107-001 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0027	0.085		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
n-Propylbenzene	ND	0.0023	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
sec-Butylbenzene	ND	0.0032	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Styrene	ND	0.0022	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
tert-Butylbenzene	ND	0.0027	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,1,1,2-Tetrachloroethane	ND	0.0019	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,1,2,2-Tetrachloroethane	ND	0.0029	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Tetrachloroethene (PCE)	ND	0.0023	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
trans-1,2-DCE	ND	0.0026	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
trans-1,3-Dichloropropene	ND	0.0030	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2,3-Trichlorobenzene	ND	0.0025	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2,4-Trichlorobenzene	ND	0.0029	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,1,1-Trichloroethane	ND	0.0026	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,1,2-Trichloroethane	ND	0.0020	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Trichloroethene (TCE)	ND	0.0033	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Trichlorofluoromethane	ND	0.0097	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
1,2,3-Trichloropropane	ND	0.0046	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Vinyl chloride	ND	0.0019	0.028		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Xylenes, Total	ND	0.0072	0.057		mg/Kg	1	11/8/2019 4:15:19 PM	S64339
Surr: Dibromofluoromethane	111		70-130		%Rec	1	11/8/2019 4:15:19 PM	S64339
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	11/8/2019 4:15:19 PM	S64339
Surr: Toluene-d8	99.4		70-130		%Rec	1	11/8/2019 4:15:19 PM	S64339
Surr: 4-Bromofluorobenzene	82.8		70-130		%Rec	1	11/8/2019 4:15:19 PM	S64339

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:25:00 AM
Lab ID: 1911107-002 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.8	8.8		mg/Kg	1	11/8/2019 2:37:02 PM	48616
Motor Oil Range Organics (MRO)	ND	44	44		mg/Kg	1	11/8/2019 2:37:02 PM	48616
Surr: DNOP	95.1	0	70-130		%Rec	1	11/8/2019 2:37:02 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.91	3.0		mg/Kg	1	11/6/2019 9:30:24 AM	G64279
Surr: BFB	99.2	0	77.4-118		%Rec	1	11/6/2019 9:30:24 AM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	3.2	1.5	1.5		mg/Kg	5	11/14/2019 1:16:00 PM	48795
Chloride	32	7.5	7.5		mg/Kg	5	11/14/2019 1:16:00 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 1:16:00 PM	48795
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 1:16:00 PM	48795
Sulfate	570	7.5	7.5		mg/Kg	5	11/14/2019 1:16:00 PM	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0043	0.0018	0.032	J	mg/Kg	1	11/19/2019 3:52:36 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **rde**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/25/2019 7:00:53 PM	48651
Arsenic	ND	2.9	5.0		mg/Kg	2	11/25/2019 7:00:53 PM	48651
Barium	300	0.047	0.20		mg/Kg	2	11/22/2019 5:38:39 PM	48651
Beryllium	0.86	0.018	0.30		mg/Kg	2	11/22/2019 4:48:07 PM	48651
Cadmium	ND	0.049	0.20		mg/Kg	2	11/22/2019 5:38:39 PM	48651
Chromium	6.4	0.16	0.60		mg/Kg	2	11/22/2019 5:38:39 PM	48651
Cobalt	3.7	0.21	0.60		mg/Kg	2	11/22/2019 5:38:39 PM	48651
Iron	11000	73	250		mg/Kg	100	11/22/2019 4:54:28 PM	48651
Lead	3.9	0.49	0.50		mg/Kg	2	11/22/2019 5:38:39 PM	48651
Manganese	140	0.042	0.20		mg/Kg	2	11/22/2019 4:48:07 PM	48651
Nickel	6.9	0.30	1.0		mg/Kg	2	11/22/2019 5:38:39 PM	48651
Selenium	ND	2.5	5.0		mg/Kg	2	11/22/2019 5:38:39 PM	48651
Silver	ND	0.064	0.50		mg/Kg	2	11/22/2019 4:48:07 PM	48651
Vanadium	14	0.13	5.0		mg/Kg	2	11/22/2019 4:48:07 PM	48651
Zinc	11	0.79	5.0		mg/Kg	2	11/25/2019 7:00:53 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Acenaphthylene	ND	0.10	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Aniline	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Anthracene	ND	0.10	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Azobenzene	ND	0.13	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Benz(a)anthracene	ND	0.090	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:25:00 AM
Lab ID: 1911107-002
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.083	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Benzo(b)fluoranthene	ND	0.083	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Benzo(g,h,i)perylene	ND	0.080	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Benzo(k)fluoranthene	ND	0.085	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Benzoic acid	ND	0.097	0.47		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Bis(2-chloroethyl)ether	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Bis(2-ethylhexyl)phthalate	ND	0.13	0.47		mg/Kg	1	11/10/2019 5:26:32 PM	48625
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Butyl benzyl phthalate	ND	0.096	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Carbazole	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
4-Chloro-3-methylphenol	ND	0.14	0.47		mg/Kg	1	11/10/2019 5:26:32 PM	48625
4-Chloroaniline	ND	0.13	0.47		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2-Chloronaphthalene	ND	0.12	0.23		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
4-Chlorophenyl phenyl ether	ND	0.10	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Chrysene	ND	0.082	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Di-n-butyl phthalate	ND	0.14	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Di-n-octyl phthalate	ND	0.095	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Dibenz(a,h)anthracene	ND	0.085	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Dibenzofuran	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
1,2-Dichlorobenzene	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
1,3-Dichlorobenzene	ND	0.098	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
1,4-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
3,3´-Dichlorobenzidine	ND	0.083	0.23		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Diethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Dimethyl phthalate	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2,4-Dichlorophenol	ND	0.11	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2,4-Dimethylphenol	ND	0.10	0.28		mg/Kg	1	11/10/2019 5:26:32 PM	48625
4,6-Dinitro-2-methylphenol	ND	0.086	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2,4-Dinitrophenol	ND	0.068	0.47		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2,4-Dinitrotoluene	ND	0.11	0.47		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2,6-Dinitrotoluene	ND	0.12	0.47		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Fluoranthene	ND	0.10	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Fluorene	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Hexachlorobutadiene	ND	0.13	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:25:00 AM
Lab ID: 1911107-002
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Hexachloroethane	ND	0.10	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Indeno(1,2,3-cd)pyrene	ND	0.093	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Isophorone	ND	0.14	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
1-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2-Methylphenol	ND	0.11	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
3+4-Methylphenol	ND	0.11	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
N-Nitrosodi-n-propylamine	ND	0.13	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
N-Nitrosodiphenylamine	ND	0.098	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Naphthalene	ND	0.14	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
4-Nitroaniline	ND	0.12	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Nitrobenzene	ND	0.13	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
4-Nitrophenol	ND	0.13	0.23		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Pentachlorophenol	ND	0.096	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Phenanthrene	ND	0.10	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Phenol	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Pyrene	ND	0.088	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Pyridine	ND	0.11	0.37		mg/Kg	1	11/10/2019 5:26:32 PM	48625
1,2,4-Trichlorobenzene	ND	0.15	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2,4,5-Trichlorophenol	ND	0.12	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
2,4,6-Trichlorophenol	ND	0.098	0.19		mg/Kg	1	11/10/2019 5:26:32 PM	48625
Surr: 2-Fluorophenol	52.7		26.7-85.9		%Rec	1	11/10/2019 5:26:32 PM	48625
Surr: Phenol-d5	57.0		18.5-101		%Rec	1	11/10/2019 5:26:32 PM	48625
Surr: 2,4,6-Tribromophenol	66.2		35.8-85.6		%Rec	1	11/10/2019 5:26:32 PM	48625
Surr: Nitrobenzene-d5	57.9		40.8-95.2		%Rec	1	11/10/2019 5:26:32 PM	48625
Surr: 2-Fluorobiphenyl	59.1		34.7-85.2		%Rec	1	11/10/2019 5:26:32 PM	48625
Surr: 4-Terphenyl-d14	57.4		37.4-91.3		%Rec	1	11/10/2019 5:26:32 PM	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0025	0.015		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Toluene	ND	0.0029	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Ethylbenzene	ND	0.0017	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0071	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2,4-Trimethylbenzene	ND	0.0027	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,3,5-Trimethylbenzene	ND	0.0029	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2-Dichloroethane (EDC)	ND	0.0031	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:25:00 AM
Lab ID: 1911107-002 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0027	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Naphthalene	ND	0.0060	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1-Methylnaphthalene	ND	0.017	0.12		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Acetone	ND	0.025	0.45		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Bromobenzene	ND	0.0029	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Bromodichloromethane	ND	0.0027	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Bromoform	ND	0.0027	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Bromomethane	ND	0.0072	0.090		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
2-Butanone	0.060	0.035	0.30	J	mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Carbon disulfide	ND	0.0099	0.30		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Carbon tetrachloride	ND	0.0028	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Chlorobenzene	ND	0.0038	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Chloroethane	ND	0.0044	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Chloroform	ND	0.0024	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Chloromethane	ND	0.0029	0.090		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
2-Chlorotoluene	ND	0.0026	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
4-Chlorotoluene	ND	0.0025	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
cis-1,2-DCE	ND	0.0041	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
cis-1,3-Dichloropropene	ND	0.0025	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0031	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Dibromochloromethane	ND	0.0021	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Dibromomethane	ND	0.0032	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2-Dichlorobenzene	ND	0.0025	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,3-Dichlorobenzene	ND	0.0026	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,4-Dichlorobenzene	ND	0.0025	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Dichlorodifluoromethane	ND	0.0070	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,1-Dichloroethane	ND	0.0019	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,1-Dichloroethene	ND	0.012	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2-Dichloropropane	ND	0.0022	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,3-Dichloropropane	ND	0.0032	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
2,2-Dichloropropane	ND	0.0097	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,1-Dichloropropene	ND	0.0027	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Hexachlorobutadiene	ND	0.0030	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
2-Hexanone	ND	0.0050	0.30		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Isopropylbenzene	ND	0.0022	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
4-Isopropyltoluene	ND	0.0025	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
4-Methyl-2-pentanone	ND	0.0057	0.30		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Methylene chloride	ND	0.0053	0.090		mg/Kg	1	11/7/2019 10:57:19 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:25:00 AM
Lab ID: 1911107-002 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0028	0.090		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
n-Propylbenzene	ND	0.0024	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
sec-Butylbenzene	ND	0.0034	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Styrene	ND	0.0024	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
tert-Butylbenzene	ND	0.0028	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0020	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0030	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Tetrachloroethene (PCE)	ND	0.0024	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
trans-1,2-DCE	ND	0.0027	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
trans-1,3-Dichloropropene	ND	0.0032	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2,3-Trichlorobenzene	ND	0.0026	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2,4-Trichlorobenzene	ND	0.0030	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,1,1-Trichloroethane	ND	0.0027	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,1,2-Trichloroethane	ND	0.0021	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Trichloroethene (TCE)	ND	0.0035	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Trichlorofluoromethane	ND	0.010	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
1,2,3-Trichloropropane	ND	0.0048	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Vinyl chloride	ND	0.0020	0.030		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Xylenes, Total	ND	0.0076	0.060		mg/Kg	1	11/7/2019 10:57:19 PM	S64307
Surr: Dibromofluoromethane	117		70-130		%Rec	1	11/7/2019 10:57:19 PM	S64307
Surr: 1,2-Dichloroethane-d4	101		70-130		%Rec	1	11/7/2019 10:57:19 PM	S64307
Surr: Toluene-d8	99.6		70-130		%Rec	1	11/7/2019 10:57:19 PM	S64307
Surr: 4-Bromofluorobenzene	88.3		70-130		%Rec	1	11/7/2019 10:57:19 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:40:00 AM
Lab ID: 1911107-003
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.9	9.5		mg/Kg	1	11/7/2019 9:02:58 PM	48616
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg	1	11/7/2019 9:02:58 PM	48616
Surr: DNOP	93.2	0	70-130		%Rec	1	11/7/2019 9:02:58 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.82	2.7		mg/Kg	1	11/6/2019 10:16:07 AM	G64279
Surr: BFB	95.6	0	77.4-118		%Rec	1	11/6/2019 10:16:07 AM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	1.9	1.5	1.5		mg/Kg	5	11/14/2019 1:40:42 PM	48795
Chloride	28	7.5	7.5		mg/Kg	5	11/14/2019 1:40:42 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 1:40:42 PM	48795
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 1:40:42 PM	48795
Sulfate	280	7.5	7.5		mg/Kg	5	11/14/2019 1:40:42 PM	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0030	0.0017	0.032	J	mg/Kg	1	11/19/2019 3:54:38 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **rde**	
Antimony	ND	0.72	4.9		mg/Kg	2	11/25/2019 7:13:54 PM	48651
Arsenic	ND	2.8	4.9		mg/Kg	2	11/25/2019 7:13:54 PM	48651
Barium	180	0.045	0.19		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Beryllium	0.88	0.018	0.29		mg/Kg	2	11/22/2019 4:56:14 PM	48651
Cadmium	ND	0.047	0.19		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Chromium	5.9	0.15	0.58		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Cobalt	3.3	0.21	0.58		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Iron	11000	71	240		mg/Kg	100	11/22/2019 4:57:50 PM	48651
Lead	4.3	0.47	0.49		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Manganese	160	0.040	0.19		mg/Kg	2	11/22/2019 4:56:14 PM	48651
Nickel	6.4	0.29	0.97		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Selenium	ND	2.4	4.9		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Silver	ND	0.062	0.49		mg/Kg	2	11/22/2019 5:46:47 PM	48651
Vanadium	12	0.13	4.9		mg/Kg	2	11/22/2019 4:56:14 PM	48651
Zinc	10	0.77	4.9		mg/Kg	2	11/25/2019 7:13:54 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Aniline	ND	0.13	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Anthracene	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Benz(a)anthracene	ND	0.095	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:40:00 AM
Lab ID: 1911107-003
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.088	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Benzo(b)fluoranthene	ND	0.088	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Benzo(g,h,i)perylene	ND	0.085	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Benzo(k)fluoranthene	ND	0.090	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Benzoic acid	ND	0.10	0.50		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Bis(2-ethylhexyl)phthalate	ND	0.14	0.50		mg/Kg	1	11/10/2019 5:55:21 PM	48625
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Carbazole	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
4-Chloro-3-methylphenol	ND	0.15	0.50		mg/Kg	1	11/10/2019 5:55:21 PM	48625
4-Chloroaniline	ND	0.14	0.50		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2-Chloronaphthalene	ND	0.12	0.25		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Chrysene	ND	0.087	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Di-n-butyl phthalate	ND	0.15	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Di-n-octyl phthalate	ND	0.10	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Dibenz(a,h)anthracene	ND	0.090	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
1,3-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
1,4-Dichlorobenzene	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
3,3´-Dichlorobenzidine	ND	0.088	0.25		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2,4-Dichlorophenol	ND	0.12	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg	1	11/10/2019 5:55:21 PM	48625
4,6-Dinitro-2-methylphenol	ND	0.092	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2,4-Dinitrophenol	ND	0.072	0.50		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2,4-Dinitrotoluene	ND	0.12	0.50		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2,6-Dinitrotoluene	ND	0.13	0.50		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Fluorene	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:40:00 AM
Lab ID: 1911107-003 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Indeno(1,2,3-cd)pyrene	ND	0.099	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Isophorone	ND	0.15	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2-Methylnaphthalene	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2-Methylphenol	ND	0.12	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
4-Nitroaniline	ND	0.13	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Nitrobenzene	ND	0.14	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2-Nitrophenol	ND	0.14	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
4-Nitrophenol	ND	0.13	0.25		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Pentachlorophenol	ND	0.10	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Phenol	ND	0.12	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Pyrene	ND	0.093	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Pyridine	ND	0.12	0.40		mg/Kg	1	11/10/2019 5:55:21 PM	48625
1,2,4-Trichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
2,4,6-Trichlorophenol	ND	0.10	0.20		mg/Kg	1	11/10/2019 5:55:21 PM	48625
Surr: 2-Fluorophenol	58.5		26.7-85.9		%Rec	1	11/10/2019 5:55:21 PM	48625
Surr: Phenol-d5	64.7		18.5-101		%Rec	1	11/10/2019 5:55:21 PM	48625
Surr: 2,4,6-Tribromophenol	63.9		35.8-85.6		%Rec	1	11/10/2019 5:55:21 PM	48625
Surr: Nitrobenzene-d5	66.1		40.8-95.2		%Rec	1	11/10/2019 5:55:21 PM	48625
Surr: 2-Fluorobiphenyl	68.0		34.7-85.2		%Rec	1	11/10/2019 5:55:21 PM	48625
Surr: 4-Terphenyl-d14	59.6		37.4-91.3		%Rec	1	11/10/2019 5:55:21 PM	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	0.0080	0.0022	0.013	J	mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Toluene	ND	0.0026	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Ethylbenzene	ND	0.0016	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0064	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2,4-Trimethylbenzene	ND	0.0025	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,3,5-Trimethylbenzene	ND	0.0026	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2-Dichloroethane (EDC)	ND	0.0028	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:40:00 AM
Lab ID: 1911107-003 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0025	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Naphthalene	ND	0.0054	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1-Methylnaphthalene	ND	0.015	0.11		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Acetone	ND	0.022	0.40		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Bromobenzene	ND	0.0026	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Bromodichloromethane	ND	0.0025	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Bromoform	ND	0.0024	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Bromomethane	ND	0.0065	0.081		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
2-Butanone	0.058	0.031	0.27	J	mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Carbon disulfide	ND	0.0089	0.27		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Carbon tetrachloride	ND	0.0026	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Chlorobenzene	ND	0.0035	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Chloroethane	ND	0.0040	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Chloroform	ND	0.0022	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Chloromethane	ND	0.0026	0.081		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
2-Chlorotoluene	ND	0.0023	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
4-Chlorotoluene	ND	0.0022	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
cis-1,2-DCE	ND	0.0037	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
cis-1,3-Dichloropropene	ND	0.0023	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0028	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Dibromochloromethane	ND	0.0019	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Dibromomethane	ND	0.0029	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2-Dichlorobenzene	ND	0.0022	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,3-Dichlorobenzene	ND	0.0023	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,4-Dichlorobenzene	ND	0.0023	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Dichlorodifluoromethane	ND	0.0063	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,1-Dichloroethane	ND	0.0017	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,1-Dichloroethene	ND	0.011	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2-Dichloropropane	ND	0.0020	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,3-Dichloropropane	ND	0.0029	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
2,2-Dichloropropane	ND	0.0088	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,1-Dichloropropene	ND	0.0025	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Hexachlorobutadiene	ND	0.0027	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
2-Hexanone	ND	0.0045	0.27		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Isopropylbenzene	ND	0.0019	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
4-Isopropyltoluene	ND	0.0022	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
4-Methyl-2-pentanone	ND	0.0051	0.27		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Methylene chloride	ND	0.0048	0.081		mg/Kg	1	11/7/2019 11:26:23 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:40:00 AM
Lab ID: 1911107-003 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0025	0.081		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
n-Propylbenzene	ND	0.0021	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
sec-Butylbenzene	ND	0.0030	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Styrene	ND	0.0021	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
tert-Butylbenzene	ND	0.0025	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0018	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0027	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Tetrachloroethene (PCE)	ND	0.0022	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
trans-1,2-DCE	ND	0.0025	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
trans-1,3-Dichloropropene	ND	0.0029	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2,3-Trichlorobenzene	ND	0.0024	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2,4-Trichlorobenzene	ND	0.0027	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,1,1-Trichloroethane	ND	0.0024	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,1,2-Trichloroethane	ND	0.0019	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Trichloroethene (TCE)	ND	0.0031	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Trichlorofluoromethane	ND	0.0091	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
1,2,3-Trichloropropane	ND	0.0044	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Vinyl chloride	ND	0.0018	0.027		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Xylenes, Total	ND	0.0068	0.054		mg/Kg	1	11/7/2019 11:26:23 PM	S64307
Surr: Dibromofluoromethane	116		70-130		%Rec	1	11/7/2019 11:26:23 PM	S64307
Surr: 1,2-Dichloroethane-d4	99.8		70-130		%Rec	1	11/7/2019 11:26:23 PM	S64307
Surr: Toluene-d8	102		70-130		%Rec	1	11/7/2019 11:26:23 PM	S64307
Surr: 4-Bromofluorobenzene	88.6		70-130		%Rec	1	11/7/2019 11:26:23 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (10-12')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:50:00 AM
Lab ID: 1911107-004 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.9	9.3		mg/Kg	1	11/7/2019 9:24:50 PM	48616
Motor Oil Range Organics (MRO)	ND	46	46		mg/Kg	1	11/7/2019 9:24:50 PM	48616
Surr: DNOP	96.6	0	70-130		%Rec	1	11/7/2019 9:24:50 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.97	3.2		mg/Kg	1	11/6/2019 10:39:00 AM	G64279
Surr: BFB	99.0	0	77.4-118		%Rec	1	11/6/2019 10:39:00 AM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/14/2019 2:30:03 PM	48795
Chloride	ND	7.5	7.5		mg/Kg	5	11/14/2019 2:30:03 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 2:30:03 PM	48795
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 2:30:03 PM	48795
Sulfate	22	7.5	7.5		mg/Kg	5	11/14/2019 2:30:03 PM	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0030	0.0018	0.032	J	mg/Kg	1	11/19/2019 3:56:40 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **rde**	
Antimony	ND	0.73	4.9		mg/Kg	2	11/25/2019 7:15:38 PM	48651
Arsenic	ND	2.8	4.9		mg/Kg	2	11/25/2019 7:15:38 PM	48651
Barium	230	0.046	0.20		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Beryllium	0.94	0.018	0.30		mg/Kg	2	11/22/2019 4:59:36 PM	48651
Cadmium	ND	0.048	0.20		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Chromium	11	0.16	0.59		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Cobalt	6.1	0.21	0.59		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Iron	16000	72	250		mg/Kg	100	11/22/2019 5:01:12 PM	48651
Lead	3.2	0.48	0.49		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Manganese	480	0.041	0.20		mg/Kg	2	11/22/2019 4:59:36 PM	48651
Nickel	15	0.30	0.99		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Selenium	ND	2.5	4.9		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Silver	ND	0.063	0.49		mg/Kg	2	11/22/2019 5:50:09 PM	48651
Vanadium	16	0.13	4.9		mg/Kg	2	11/22/2019 4:59:36 PM	48651
Zinc	16	0.78	4.9		mg/Kg	2	11/25/2019 7:15:38 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Aniline	ND	0.13	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Anthracene	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Benz(a)anthracene	ND	0.095	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (10-12')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:50:00 AM
Lab ID: 1911107-004
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.087	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Benzo(b)fluoranthene	ND	0.087	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Benzo(g,h,i)perylene	ND	0.084	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Benzo(k)fluoranthene	ND	0.089	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Benzoic acid	ND	0.10	0.49		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Bis(2-chloroethoxy)methane	ND	0.15	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Bis(2-ethylhexyl)phthalate	ND	0.14	0.49		mg/Kg	1	11/10/2019 6:24:09 PM	48625
4-Bromophenyl phenyl ether	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Carbazole	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
4-Chloro-3-methylphenol	ND	0.15	0.49		mg/Kg	1	11/10/2019 6:24:09 PM	48625
4-Chloroaniline	ND	0.14	0.49		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2-Chloronaphthalene	ND	0.12	0.25		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Chrysene	ND	0.087	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Di-n-butyl phthalate	ND	0.15	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Di-n-octyl phthalate	ND	0.10	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Dibenz(a,h)anthracene	ND	0.089	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
1,3-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
1,4-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
3,3´-Dichlorobenzidine	ND	0.087	0.25		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2,4-Dichlorophenol	ND	0.11	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg	1	11/10/2019 6:24:09 PM	48625
4,6-Dinitro-2-methylphenol	ND	0.091	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2,4-Dinitrophenol	ND	0.071	0.49		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2,4-Dinitrotoluene	ND	0.12	0.49		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2,6-Dinitrotoluene	ND	0.13	0.49		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Fluorene	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (10-12')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:50:00 AM
Lab ID: 1911107-004 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Indeno(1,2,3-cd)pyrene	ND	0.098	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Isophorone	ND	0.14	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2-Methylnaphthalene	ND	0.14	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2-Methylphenol	ND	0.12	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
3-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
4-Nitroaniline	ND	0.13	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Nitrobenzene	ND	0.14	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2-Nitrophenol	ND	0.13	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
4-Nitrophenol	ND	0.13	0.25		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Pentachlorophenol	ND	0.10	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Phenol	ND	0.12	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Pyrene	ND	0.092	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Pyridine	ND	0.12	0.39		mg/Kg	1	11/10/2019 6:24:09 PM	48625
1,2,4-Trichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
2,4,6-Trichlorophenol	ND	0.10	0.20		mg/Kg	1	11/10/2019 6:24:09 PM	48625
Surr: 2-Fluorophenol	66.9		26.7-85.9		%Rec	1	11/10/2019 6:24:09 PM	48625
Surr: Phenol-d5	69.4		18.5-101		%Rec	1	11/10/2019 6:24:09 PM	48625
Surr: 2,4,6-Tribromophenol	75.3		35.8-85.6		%Rec	1	11/10/2019 6:24:09 PM	48625
Surr: Nitrobenzene-d5	83.4		40.8-95.2		%Rec	1	11/10/2019 6:24:09 PM	48625
Surr: 2-Fluorobiphenyl	77.9		34.7-85.2		%Rec	1	11/10/2019 6:24:09 PM	48625
Surr: 4-Terphenyl-d14	69.2		37.4-91.3		%Rec	1	11/10/2019 6:24:09 PM	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0026	0.016		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Toluene	ND	0.0031	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Ethylbenzene	ND	0.0019	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0076	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2,4-Trimethylbenzene	ND	0.0029	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,3,5-Trimethylbenzene	ND	0.0031	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2-Dichloroethane (EDC)	ND	0.0033	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (10-12')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:50:00 AM
Lab ID: 1911107-004 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0029	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Naphthalene	ND	0.0064	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1-Methylnaphthalene	ND	0.018	0.13		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
2-Methylnaphthalene	ND	0.014	0.13		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Acetone	ND	0.027	0.48		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Bromobenzene	ND	0.0031	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Bromodichloromethane	ND	0.0029	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Bromoform	ND	0.0029	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Bromomethane	ND	0.0077	0.096		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
2-Butanone	0.061	0.037	0.32	J	mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Carbon disulfide	ND	0.011	0.32		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Carbon tetrachloride	ND	0.0030	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Chlorobenzene	ND	0.0041	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Chloroethane	ND	0.0047	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Chloroform	ND	0.0026	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Chloromethane	ND	0.0031	0.096		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
2-Chlorotoluene	ND	0.0028	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
4-Chlorotoluene	ND	0.0026	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
cis-1,2-DCE	ND	0.0044	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
cis-1,3-Dichloropropene	ND	0.0027	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0033	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Dibromochloromethane	ND	0.0023	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Dibromomethane	ND	0.0034	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2-Dichlorobenzene	ND	0.0026	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,3-Dichlorobenzene	ND	0.0028	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,4-Dichlorobenzene	ND	0.0027	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Dichlorodifluoromethane	ND	0.0074	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,1-Dichloroethane	ND	0.0020	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,1-Dichloroethene	ND	0.013	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2-Dichloropropane	ND	0.0023	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,3-Dichloropropane	ND	0.0035	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
2,2-Dichloropropane	ND	0.010	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,1-Dichloropropene	ND	0.0029	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Hexachlorobutadiene	ND	0.0033	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
2-Hexanone	ND	0.0053	0.32		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Isopropylbenzene	ND	0.0023	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
4-Isopropyltoluene	ND	0.0027	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
4-Methyl-2-pentanone	ND	0.0060	0.32		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Methylene chloride	ND	0.0057	0.096		mg/Kg	1	11/7/2019 11:55:28 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7 (10-12')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 10:50:00 AM
Lab ID: 1911107-004 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0030	0.096		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
n-Propylbenzene	ND	0.0026	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
sec-Butylbenzene	ND	0.0036	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Styrene	ND	0.0025	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
tert-Butylbenzene	ND	0.0030	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0022	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0032	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Tetrachloroethene (PCE)	ND	0.0026	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
trans-1,2-DCE	ND	0.0029	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
trans-1,3-Dichloropropene	ND	0.0034	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2,3-Trichlorobenzene	ND	0.0028	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2,4-Trichlorobenzene	ND	0.0032	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,1,1-Trichloroethane	ND	0.0029	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,1,2-Trichloroethane	ND	0.0023	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Trichloroethene (TCE)	ND	0.0037	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Trichlorofluoromethane	ND	0.011	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
1,2,3-Trichloropropane	ND	0.0052	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Vinyl chloride	ND	0.0021	0.032		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Xylenes, Total	ND	0.0081	0.064		mg/Kg	1	11/7/2019 11:55:28 PM	S64307
Surr: Dibromofluoromethane	115		70-130		%Rec	1	11/7/2019 11:55:28 PM	S64307
Surr: 1,2-Dichloroethane-d4	99.3		70-130		%Rec	1	11/7/2019 11:55:28 PM	S64307
Surr: Toluene-d8	100		70-130		%Rec	1	11/7/2019 11:55:28 PM	S64307
Surr: 4-Bromofluorobenzene	83.7		70-130		%Rec	1	11/7/2019 11:55:28 PM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:35:00 PM
Lab ID: 1911107-005 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	2600	19	97		mg/Kg	10	11/11/2019 1:09:46 PM	48616
Motor Oil Range Organics (MRO)	740	480	480		mg/Kg	10	11/11/2019 1:09:46 PM	48616
Surr: DNOP	0	0	70-130	S	%Rec	10	11/11/2019 1:09:46 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	1.2	4.0		mg/Kg	1	11/6/2019 11:01:55 AM	G64279
Surr: BFB	96.6	0	77.4-118		%Rec	1	11/6/2019 11:01:55 AM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/14/2019 2:54:46 PM	48795
Chloride	120	7.5	7.5		mg/Kg	5	11/14/2019 2:54:46 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 2:54:46 PM	48795
Nitrogen, Nitrate (As N)	110	6.0	6.0		mg/Kg	20	11/14/2019 3:07:07 PM	48795
Sulfate	3200	75	75		mg/Kg	50	11/15/2019 12:34:13 P	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.53	0.0087	0.16		mg/Kg	5	11/19/2019 4:36:12 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.75	5.1		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Arsenic	ND	2.9	5.1		mg/Kg	2	11/25/2019 7:17:26 PM	48651
Barium	300	0.047	0.20		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Beryllium	0.93	0.019	0.31		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Cadmium	ND	0.049	0.20		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Chromium	9.5	0.16	0.61		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Cobalt	2.7	0.22	0.61		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Iron	9000	74	250		mg/Kg	100	11/22/2019 5:12:37 PM	48651
Lead	11	0.49	0.51		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Manganese	90	0.042	0.20		mg/Kg	2	11/22/2019 5:11:06 PM	48651
Nickel	6.4	0.30	1.0		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Selenium	ND	2.6	5.1		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Silver	ND	0.065	0.51		mg/Kg	2	11/22/2019 6:01:13 PM	48651
Vanadium	10	0.14	5.1		mg/Kg	2	11/22/2019 5:11:06 PM	48651
Zinc	64	0.81	5.1		mg/Kg	2	11/25/2019 7:17:26 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Acenaphthylene	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Aniline	ND	1.3	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Anthracene	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Azobenzene	ND	1.4	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Benz(a)anthracene	ND	0.95	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:35:00 PM
Lab ID: 1911107-005 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.87	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Benzo(b)fluoranthene	ND	0.87	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Benzo(g,h,i)perylene	ND	0.84	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Benzo(k)fluoranthene	ND	0.89	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Benzoic acid	ND	1.0	4.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Benzyl alcohol	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Bis(2-chloroethoxy)methane	ND	1.5	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Bis(2-chloroethyl)ether	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Bis(2-chloroisopropyl)ether	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Bis(2-ethylhexyl)phthalate	ND	1.4	4.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
4-Bromophenyl phenyl ether	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Butyl benzyl phthalate	ND	1.0	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Carbazole	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
4-Chloro-3-methylphenol	ND	1.5	4.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
4-Chloroaniline	ND	1.4	4.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2-Chloronaphthalene	ND	1.2	2.5	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2-Chlorophenol	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
4-Chlorophenyl phenyl ether	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Chrysene	ND	0.87	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Di-n-butyl phthalate	ND	1.5	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Di-n-octyl phthalate	ND	1.0	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Dibenz(a,h)anthracene	ND	0.89	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Dibenzofuran	ND	1.3	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
1,2-Dichlorobenzene	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
1,3-Dichlorobenzene	ND	1.0	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
1,4-Dichlorobenzene	ND	1.0	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
3,3´-Dichlorobenzidine	ND	0.87	2.5	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Diethyl phthalate	ND	1.4	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Dimethyl phthalate	ND	1.3	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2,4-Dichlorophenol	ND	1.1	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2,4-Dimethylphenol	ND	1.1	3.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
4,6-Dinitro-2-methylphenol	ND	0.91	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2,4-Dinitrophenol	ND	0.71	4.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2,4-Dinitrotoluene	ND	1.2	4.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2,6-Dinitrotoluene	ND	1.3	4.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Fluoranthene	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Fluorene	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Hexachlorobenzene	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Hexachlorobutadiene	ND	1.4	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:35:00 PM
Lab ID: 1911107-005 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Hexachloroethane	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Indeno(1,2,3-cd)pyrene	ND	0.98	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Isophorone	ND	1.4	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
1-Methylnaphthalene	ND	1.5	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2-Methylnaphthalene	ND	1.4	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2-Methylphenol	ND	1.2	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
3+4-Methylphenol	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
N-Nitrosodi-n-propylamine	ND	1.4	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
N-Nitrosodiphenylamine	ND	1.0	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Naphthalene	ND	1.5	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2-Nitroaniline	ND	1.4	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
3-Nitroaniline	ND	1.4	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
4-Nitroaniline	ND	1.3	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Nitrobenzene	ND	1.4	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2-Nitrophenol	ND	1.3	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
4-Nitrophenol	ND	1.3	2.5	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Pentachlorophenol	ND	1.0	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Phenanthrene	ND	1.1	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Phenol	ND	1.2	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Pyrene	ND	0.92	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Pyridine	ND	1.2	3.9	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
1,2,4-Trichlorobenzene	ND	1.5	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2,4,5-Trichlorophenol	ND	1.3	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
2,4,6-Trichlorophenol	ND	1.0	2.0	D	mg/Kg	1	11/10/2019 6:52:54 PM	48625
Surr: 2-Fluorophenol	0		26.7-85.9	SD	%Rec	1	11/10/2019 6:52:54 PM	48625
Surr: Phenol-d5	0		18.5-101	SD	%Rec	1	11/10/2019 6:52:54 PM	48625
Surr: 2,4,6-Tribromophenol	0		35.8-85.6	SD	%Rec	1	11/10/2019 6:52:54 PM	48625
Surr: Nitrobenzene-d5	0		40.8-95.2	SD	%Rec	1	11/10/2019 6:52:54 PM	48625
Surr: 2-Fluorobiphenyl	0		34.7-85.2	SD	%Rec	1	11/10/2019 6:52:54 PM	48625
Surr: 4-Terphenyl-d14	0		37.4-91.3	SD	%Rec	1	11/10/2019 6:52:54 PM	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0032	0.020		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Toluene	ND	0.0038	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Ethylbenzene	ND	0.0023	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0094	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2,4-Trimethylbenzene	0.012	0.0036	0.040	J	mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,3,5-Trimethylbenzene	ND	0.0038	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2-Dichloroethane (EDC)	ND	0.0040	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:35:00 PM
Lab ID: 1911107-005 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0036	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Naphthalene	ND	0.0079	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1-Methylnaphthalene	ND	0.023	0.16		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
2-Methylnaphthalene	ND	0.017	0.16		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Acetone	ND	0.033	0.59		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Bromobenzene	ND	0.0038	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Bromodichloromethane	ND	0.0036	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Bromoform	ND	0.0036	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Bromomethane	ND	0.0095	0.12		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
2-Butanone	ND	0.046	0.40		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Carbon disulfide	ND	0.013	0.40		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Carbon tetrachloride	ND	0.0037	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Chlorobenzene	ND	0.0051	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Chloroethane	ND	0.0058	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Chloroform	ND	0.0032	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Chloromethane	ND	0.0038	0.12		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
2-Chlorotoluene	ND	0.0034	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
4-Chlorotoluene	ND	0.0032	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
cis-1,2-DCE	ND	0.0054	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
cis-1,3-Dichloropropene	ND	0.0033	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0041	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Dibromochloromethane	ND	0.0028	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Dibromomethane	ND	0.0043	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2-Dichlorobenzene	ND	0.0032	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,3-Dichlorobenzene	ND	0.0034	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,4-Dichlorobenzene	ND	0.0033	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Dichlorodifluoromethane	ND	0.0092	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,1-Dichloroethane	ND	0.0025	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,1-Dichloroethene	ND	0.016	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2-Dichloropropane	ND	0.0029	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,3-Dichloropropane	ND	0.0043	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
2,2-Dichloropropane	ND	0.013	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,1-Dichloropropene	ND	0.0036	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Hexachlorobutadiene	ND	0.0040	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
2-Hexanone	ND	0.0066	0.40		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Isopropylbenzene	ND	0.0028	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
4-Isopropyltoluene	ND	0.0033	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
4-Methyl-2-pentanone	ND	0.0075	0.40		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Methylene chloride	ND	0.0070	0.12		mg/Kg	1	11/8/2019 12:24:30 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (0-0.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:35:00 PM
Lab ID: 1911107-005 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0037	0.12		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
n-Propylbenzene	ND	0.0032	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
sec-Butylbenzene	ND	0.0045	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Styrene	ND	0.0031	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
tert-Butylbenzene	ND	0.0037	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0027	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0040	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Tetrachloroethene (PCE)	ND	0.0032	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
trans-1,2-DCE	ND	0.0036	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
trans-1,3-Dichloropropene	ND	0.0042	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2,3-Trichlorobenzene	ND	0.0035	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2,4-Trichlorobenzene	ND	0.0040	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,1,1-Trichloroethane	ND	0.0036	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,1,2-Trichloroethane	ND	0.0028	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Trichloroethene (TCE)	ND	0.0046	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Trichlorofluoromethane	ND	0.013	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
1,2,3-Trichloropropane	ND	0.0064	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Vinyl chloride	ND	0.0026	0.040		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Xylenes, Total	ND	0.010	0.079		mg/Kg	1	11/8/2019 12:24:30 AM	S64307
Surr: Dibromofluoromethane	118		70-130		%Rec	1	11/8/2019 12:24:30 AM	S64307
Surr: 1,2-Dichloroethane-d4	104		70-130		%Rec	1	11/8/2019 12:24:30 AM	S64307
Surr: Toluene-d8	101		70-130		%Rec	1	11/8/2019 12:24:30 AM	S64307
Surr: 4-Bromofluorobenzene	88.4		70-130		%Rec	1	11/8/2019 12:24:30 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:45:00 PM
Lab ID: 1911107-006
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	46	1.8	9.0		mg/Kg	1	11/8/2019 3:21:13 PM	48616
Motor Oil Range Organics (MRO)	ND	45	45		mg/Kg	1	11/8/2019 3:21:13 PM	48616
Surr: DNOP	95.5	0	70-130		%Rec	1	11/8/2019 3:21:13 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.80	2.6		mg/Kg	1	11/6/2019 11:24:47 AM	G64279
Surr: BFB	96.0	0	77.4-118		%Rec	1	11/6/2019 11:24:47 AM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.2	1.5	1.5		mg/Kg	5	11/14/2019 3:19:27 PM	48795
Chloride	32	7.5	7.5		mg/Kg	5	11/14/2019 3:19:27 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 3:19:27 PM	48795
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 3:19:27 PM	48795
Sulfate	570	7.5	7.5		mg/Kg	5	11/14/2019 3:19:27 PM	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.012	0.0018	0.032	J	mg/Kg	1	11/19/2019 4:12:12 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Arsenic	ND	2.9	5.0		mg/Kg	2	11/25/2019 7:19:08 PM	48651
Barium	330	0.047	0.20		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Beryllium	0.77	0.018	0.30		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Cadmium	ND	0.049	0.20		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Chromium	6.1	0.16	0.60		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Cobalt	3.5	0.21	0.60		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Iron	10000	73	250		mg/Kg	100	11/22/2019 6:06:15 PM	48651
Lead	4.4	0.49	0.50		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Manganese	140	0.042	0.20		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Nickel	6.5	0.30	1.0		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Selenium	ND	2.5	5.0		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Silver	ND	0.064	0.50		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Vanadium	13	0.13	5.0		mg/Kg	2	11/22/2019 6:04:39 PM	48651
Zinc	17	0.79	5.0		mg/Kg	2	11/22/2019 6:04:39 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.23	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Acenaphthylene	ND	0.21	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Aniline	ND	0.25	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Anthracene	ND	0.21	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Azobenzene	ND	0.27	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Benz(a)anthracene	ND	0.19	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:45:00 PM
Lab ID: 1911107-006
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.17	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Benzo(b)fluoranthene	ND	0.17	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Benzo(g,h,i)perylene	ND	0.17	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Benzo(k)fluoranthene	ND	0.18	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Benzoic acid	ND	0.20	0.97		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Benzyl alcohol	ND	0.24	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Bis(2-chloroethoxy)methane	ND	0.29	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Bis(2-chloroethyl)ether	ND	0.24	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Bis(2-chloroisopropyl)ether	ND	0.22	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Bis(2-ethylhexyl)phthalate	ND	0.28	0.97		mg/Kg	1	11/10/2019 7:21:38 PM	48625
4-Bromophenyl phenyl ether	ND	0.23	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Butyl benzyl phthalate	ND	0.20	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Carbazole	ND	0.23	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
4-Chloro-3-methylphenol	ND	0.30	0.97		mg/Kg	1	11/10/2019 7:21:38 PM	48625
4-Chloroaniline	ND	0.27	0.97		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2-Chloronaphthalene	ND	0.24	0.48		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2-Chlorophenol	ND	0.24	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
4-Chlorophenyl phenyl ether	ND	0.21	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Chrysene	ND	0.17	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Di-n-butyl phthalate	ND	0.29	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Di-n-octyl phthalate	ND	0.20	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Dibenz(a,h)anthracene	ND	0.18	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Dibenzofuran	ND	0.25	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
1,2-Dichlorobenzene	ND	0.23	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
1,3-Dichlorobenzene	ND	0.20	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
1,4-Dichlorobenzene	ND	0.21	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
3,3´-Dichlorobenzidine	ND	0.17	0.48		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Diethyl phthalate	ND	0.28	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Dimethyl phthalate	ND	0.26	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2,4-Dichlorophenol	ND	0.22	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2,4-Dimethylphenol	ND	0.21	0.58		mg/Kg	1	11/10/2019 7:21:38 PM	48625
4,6-Dinitro-2-methylphenol	ND	0.18	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2,4-Dinitrophenol	ND	0.14	0.97		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2,4-Dinitrotoluene	ND	0.23	0.97		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2,6-Dinitrotoluene	ND	0.25	0.97		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Fluoranthene	ND	0.22	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Fluorene	ND	0.22	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Hexachlorobenzene	ND	0.24	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Hexachlorobutadiene	ND	0.27	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:45:00 PM
Lab ID: 1911107-006 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.22	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Hexachloroethane	ND	0.22	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Indeno(1,2,3-cd)pyrene	ND	0.19	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Isophorone	ND	0.28	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
1-Methylnaphthalene	ND	0.29	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2-Methylnaphthalene	ND	0.28	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2-Methylphenol	ND	0.23	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
3+4-Methylphenol	ND	0.24	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
N-Nitrosodi-n-propylamine	ND	0.28	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
N-Nitrosodiphenylamine	ND	0.20	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Naphthalene	ND	0.29	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2-Nitroaniline	ND	0.28	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
3-Nitroaniline	ND	0.27	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
4-Nitroaniline	ND	0.25	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Nitrobenzene	ND	0.27	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2-Nitrophenol	ND	0.26	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
4-Nitrophenol	ND	0.26	0.48		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Pentachlorophenol	ND	0.20	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Phenanthrene	ND	0.21	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Phenol	ND	0.24	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Pyrene	ND	0.18	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Pyridine	ND	0.23	0.77		mg/Kg	1	11/10/2019 7:21:38 PM	48625
1,2,4-Trichlorobenzene	ND	0.30	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2,4,5-Trichlorophenol	ND	0.25	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
2,4,6-Trichlorophenol	ND	0.20	0.39		mg/Kg	1	11/10/2019 7:21:38 PM	48625
Surr: 2-Fluorophenol	47.6		26.7-85.9		%Rec	1	11/10/2019 7:21:38 PM	48625
Surr: Phenol-d5	54.1		18.5-101		%Rec	1	11/10/2019 7:21:38 PM	48625
Surr: 2,4,6-Tribromophenol	59.3		35.8-85.6		%Rec	1	11/10/2019 7:21:38 PM	48625
Surr: Nitrobenzene-d5	67.1		40.8-95.2		%Rec	1	11/10/2019 7:21:38 PM	48625
Surr: 2-Fluorobiphenyl	64.0		34.7-85.2		%Rec	1	11/10/2019 7:21:38 PM	48625
Surr: 4-Terphenyl-d14	48.9		37.4-91.3		%Rec	1	11/10/2019 7:21:38 PM	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0022	0.013		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Toluene	ND	0.0025	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Ethylbenzene	ND	0.0015	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0062	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2,4-Trimethylbenzene	ND	0.0024	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,3,5-Trimethylbenzene	ND	0.0025	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2-Dichloroethane (EDC)	ND	0.0027	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:45:00 PM
Lab ID: 1911107-006
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0024	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Naphthalene	ND	0.0053	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1-Methylnaphthalene	ND	0.015	0.11		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
2-Methylnaphthalene	ND	0.012	0.11		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Acetone	ND	0.022	0.39		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Bromobenzene	ND	0.0025	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Bromodichloromethane	ND	0.0024	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Bromoform	ND	0.0024	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Bromomethane	ND	0.0063	0.079		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
2-Butanone	0.056	0.030	0.26	J	mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Carbon disulfide	ND	0.0087	0.26		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Carbon tetrachloride	ND	0.0025	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Chlorobenzene	ND	0.0034	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Chloroethane	ND	0.0039	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Chloroform	ND	0.0021	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Chloromethane	ND	0.0025	0.079		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
2-Chlorotoluene	ND	0.0023	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
4-Chlorotoluene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
cis-1,2-DCE	ND	0.0036	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
cis-1,3-Dichloropropene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0027	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Dibromochloromethane	ND	0.0019	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Dibromomethane	ND	0.0028	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2-Dichlorobenzene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,3-Dichlorobenzene	ND	0.0023	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,4-Dichlorobenzene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Dichlorodifluoromethane	ND	0.0061	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,1-Dichloroethane	ND	0.0017	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,1-Dichloroethene	ND	0.011	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2-Dichloropropane	ND	0.0019	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,3-Dichloropropane	ND	0.0028	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
2,2-Dichloropropane	ND	0.0086	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,1-Dichloropropene	ND	0.0024	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Hexachlorobutadiene	ND	0.0027	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
2-Hexanone	ND	0.0044	0.26		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Isopropylbenzene	ND	0.0019	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
4-Isopropyltoluene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
4-Methyl-2-pentanone	ND	0.0050	0.26		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Methylene chloride	ND	0.0047	0.079		mg/Kg	1	11/8/2019 12:53:34 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2-2.5')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:45:00 PM
Lab ID: 1911107-006 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0025	0.079		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
n-Propylbenzene	ND	0.0021	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
sec-Butylbenzene	ND	0.0030	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Styrene	ND	0.0021	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
tert-Butylbenzene	ND	0.0025	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0018	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0027	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Tetrachloroethene (PCE)	ND	0.0021	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
trans-1,2-DCE	ND	0.0024	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
trans-1,3-Dichloropropene	ND	0.0028	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2,3-Trichlorobenzene	ND	0.0023	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2,4-Trichlorobenzene	ND	0.0027	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,1,1-Trichloroethane	ND	0.0024	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,1,2-Trichloroethane	ND	0.0019	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Trichloroethene (TCE)	ND	0.0030	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Trichlorofluoromethane	ND	0.0089	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
1,2,3-Trichloropropane	ND	0.0043	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Vinyl chloride	ND	0.0017	0.026		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Xylenes, Total	ND	0.0066	0.053		mg/Kg	1	11/8/2019 12:53:34 AM	S64307
Surr: Dibromofluoromethane	114		70-130		%Rec	1	11/8/2019 12:53:34 AM	S64307
Surr: 1,2-Dichloroethane-d4	102		70-130		%Rec	1	11/8/2019 12:53:34 AM	S64307
Surr: Toluene-d8	102		70-130		%Rec	1	11/8/2019 12:53:34 AM	S64307
Surr: 4-Bromofluorobenzene	85.5		70-130		%Rec	1	11/8/2019 12:53:34 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:55:00 PM
Lab ID: 1911107-007
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	6.2	1.9	9.4	J	mg/Kg	1	11/8/2019 4:27:16 PM	48616
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	11/8/2019 4:27:16 PM	48616
Surr: DNOP	94.9	0	70-130		%Rec	1	11/8/2019 4:27:16 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.78	2.6		mg/Kg	1	11/6/2019 11:47:33 AM	G64279
Surr: BFB	101	0	77.4-118		%Rec	1	11/6/2019 11:47:33 AM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	2.5	1.5	1.5		mg/Kg	5	11/14/2019 3:44:08 PM	48795
Chloride	27	7.5	7.5		mg/Kg	5	11/14/2019 3:44:08 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 3:44:08 PM	48795
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 3:44:08 PM	48795
Sulfate	360	7.5	7.5		mg/Kg	5	11/14/2019 3:44:08 PM	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.016	0.0017	0.031	J	mg/Kg	1	11/19/2019 4:14:16 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Arsenic	ND	2.9	5.0		mg/Kg	2	11/25/2019 7:20:51 PM	48651
Barium	200	0.046	0.20		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Beryllium	0.86	0.018	0.30		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Cadmium	ND	0.049	0.20		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Chromium	6.9	0.16	0.60		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Cobalt	5.0	0.21	0.60		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Iron	11000	73	250		mg/Kg	100	11/22/2019 6:09:38 PM	48651
Lead	4.1	0.49	0.50		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Manganese	160	0.042	0.20		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Nickel	7.7	0.30	1.0		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Selenium	ND	2.5	5.0		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Silver	ND	0.064	0.50		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Vanadium	13	0.13	5.0		mg/Kg	2	11/22/2019 6:08:02 PM	48651
Zinc	11	0.79	5.0		mg/Kg	2	11/22/2019 6:08:02 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Acenaphthylene	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Aniline	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Anthracene	ND	0.10	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Azobenzene	ND	0.14	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Benz(a)anthracene	ND	0.094	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:55:00 PM
Lab ID: 1911107-007
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.086	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Benzo(b)fluoranthene	ND	0.086	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Benzo(g,h,i)perylene	ND	0.083	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Benzo(k)fluoranthene	ND	0.088	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Benzoic acid	ND	0.10	0.49		mg/Kg	1	11/11/2019 10:58:22 A	48625
Benzyl alcohol	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Bis(2-chloroethoxy)methane	ND	0.14	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Bis(2-chloroethyl)ether	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Bis(2-chloroisopropyl)ether	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Bis(2-ethylhexyl)phthalate	ND	0.14	0.49		mg/Kg	1	11/11/2019 10:58:22 A	48625
4-Bromophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Butyl benzyl phthalate	ND	0.099	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Carbazole	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
4-Chloro-3-methylphenol	ND	0.15	0.49		mg/Kg	1	11/11/2019 10:58:22 A	48625
4-Chloroaniline	ND	0.14	0.49		mg/Kg	1	11/11/2019 10:58:22 A	48625
2-Chloronaphthalene	ND	0.12	0.24		mg/Kg	1	11/11/2019 10:58:22 A	48625
2-Chlorophenol	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
4-Chlorophenyl phenyl ether	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Chrysene	ND	0.086	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Di-n-butyl phthalate	ND	0.14	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
Di-n-octyl phthalate	ND	0.099	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
Dibenz(a,h)anthracene	ND	0.088	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Dibenzofuran	ND	0.13	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
1,2-Dichlorobenzene	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
1,3-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
1,4-Dichlorobenzene	ND	0.10	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
3,3´-Dichlorobenzidine	ND	0.086	0.24		mg/Kg	1	11/11/2019 10:58:22 A	48625
Diethyl phthalate	ND	0.14	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Dimethyl phthalate	ND	0.13	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
2,4-Dichlorophenol	ND	0.11	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
2,4-Dimethylphenol	ND	0.11	0.29		mg/Kg	1	11/11/2019 10:58:22 A	48625
4,6-Dinitro-2-methylphenol	ND	0.090	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
2,4-Dinitrophenol	ND	0.071	0.49		mg/Kg	1	11/11/2019 10:58:22 A	48625
2,4-Dinitrotoluene	ND	0.11	0.49		mg/Kg	1	11/11/2019 10:58:22 A	48625
2,6-Dinitrotoluene	ND	0.13	0.49		mg/Kg	1	11/11/2019 10:58:22 A	48625
Fluoranthene	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Fluorene	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Hexachlorobenzene	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Hexachlorobutadiene	ND	0.14	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:55:00 PM
Lab ID: 1911107-007
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Hexachloroethane	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Indeno(1,2,3-cd)pyrene	ND	0.097	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Isophorone	ND	0.14	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
1-Methylnaphthalene	ND	0.15	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
2-Methylnaphthalene	ND	0.14	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
2-Methylphenol	ND	0.12	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
3+4-Methylphenol	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
N-Nitrosodi-n-propylamine	ND	0.14	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
N-Nitrosodiphenylamine	ND	0.10	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Naphthalene	ND	0.15	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
2-Nitroaniline	ND	0.14	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
3-Nitroaniline	ND	0.13	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
4-Nitroaniline	ND	0.12	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
Nitrobenzene	ND	0.13	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
2-Nitrophenol	ND	0.13	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
4-Nitrophenol	ND	0.13	0.24		mg/Kg	1	11/11/2019 10:58:22 A	48625
Pentachlorophenol	ND	0.10	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
Phenanthrene	ND	0.11	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Phenol	ND	0.12	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Pyrene	ND	0.091	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Pyridine	ND	0.12	0.39		mg/Kg	1	11/11/2019 10:58:22 A	48625
1,2,4-Trichlorobenzene	ND	0.15	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
2,4,5-Trichlorophenol	ND	0.13	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
2,4,6-Trichlorophenol	ND	0.10	0.19		mg/Kg	1	11/11/2019 10:58:22 A	48625
Surr: 2-Fluorophenol	50.2		26.7-85.9		%Rec	1	11/11/2019 10:58:22 A	48625
Surr: Phenol-d5	54.7		18.5-101		%Rec	1	11/11/2019 10:58:22 A	48625
Surr: 2,4,6-Tribromophenol	54.4		35.8-85.6		%Rec	1	11/11/2019 10:58:22 A	48625
Surr: Nitrobenzene-d5	54.6		40.8-95.2		%Rec	1	11/11/2019 10:58:22 A	48625
Surr: 2-Fluorobiphenyl	55.2		34.7-85.2		%Rec	1	11/11/2019 10:58:22 A	48625
Surr: 4-Terphenyl-d14	45.7		37.4-91.3		%Rec	1	11/11/2019 10:58:22 A	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0021	0.013		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Toluene	ND	0.0025	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Ethylbenzene	ND	0.0015	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0061	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2,4-Trimethylbenzene	ND	0.0024	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,3,5-Trimethylbenzene	ND	0.0025	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2-Dichloroethane (EDC)	ND	0.0026	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:55:00 PM
Lab ID: 1911107-007
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0024	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Naphthalene	ND	0.0052	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1-Methylnaphthalene	ND	0.015	0.10		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
2-Methylnaphthalene	ND	0.011	0.10		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Acetone	ND	0.021	0.39		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Bromobenzene	ND	0.0025	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Bromodichloromethane	ND	0.0024	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Bromoform	ND	0.0023	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Bromomethane	ND	0.0062	0.078		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
2-Butanone	0.046	0.030	0.26	J	mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Carbon disulfide	ND	0.0085	0.26		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Carbon tetrachloride	ND	0.0025	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Chlorobenzene	ND	0.0033	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Chloroethane	ND	0.0038	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Chloroform	ND	0.0021	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Chloromethane	ND	0.0025	0.078		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
2-Chlorotoluene	ND	0.0023	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
4-Chlorotoluene	ND	0.0021	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
cis-1,2-DCE	ND	0.0035	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
cis-1,3-Dichloropropene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0027	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Dibromochloromethane	ND	0.0018	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Dibromomethane	ND	0.0028	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2-Dichlorobenzene	ND	0.0021	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,3-Dichlorobenzene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,4-Dichlorobenzene	ND	0.0022	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Dichlorodifluoromethane	ND	0.0060	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,1-Dichloroethane	ND	0.0017	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,1-Dichloroethene	ND	0.010	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2-Dichloropropane	ND	0.0019	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,3-Dichloropropane	ND	0.0028	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
2,2-Dichloropropane	ND	0.0084	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,1-Dichloropropene	ND	0.0024	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Hexachlorobutadiene	ND	0.0026	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
2-Hexanone	ND	0.0043	0.26		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Isopropylbenzene	ND	0.0019	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
4-Isopropyltoluene	ND	0.0021	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
4-Methyl-2-pentanone	ND	0.0049	0.26		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Methylene chloride	0.0087	0.0046	0.078	J	mg/Kg	1	11/8/2019 1:22:35 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (2.5-4')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 12:55:00 PM
Lab ID: 1911107-007
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0024	0.078		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
n-Propylbenzene	ND	0.0021	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
sec-Butylbenzene	ND	0.0029	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Styrene	ND	0.0020	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
tert-Butylbenzene	ND	0.0024	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0017	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0026	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Tetrachloroethene (PCE)	ND	0.0021	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
trans-1,2-DCE	ND	0.0024	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
trans-1,3-Dichloropropene	ND	0.0027	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2,3-Trichlorobenzene	ND	0.0023	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2,4-Trichlorobenzene	ND	0.0026	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,1,1-Trichloroethane	ND	0.0023	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,1,2-Trichloroethane	ND	0.0018	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Trichloroethene (TCE)	ND	0.0030	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Trichlorofluoromethane	ND	0.0088	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
1,2,3-Trichloropropane	ND	0.0042	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Vinyl chloride	ND	0.0017	0.026		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Xylenes, Total	ND	0.0065	0.052		mg/Kg	1	11/8/2019 1:22:35 AM	S64307
Surr: Dibromofluoromethane	116		70-130		%Rec	1	11/8/2019 1:22:35 AM	S64307
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	11/8/2019 1:22:35 AM	S64307
Surr: Toluene-d8	99.3		70-130		%Rec	1	11/8/2019 1:22:35 AM	S64307
Surr: 4-Bromofluorobenzene	90.2		70-130		%Rec	1	11/8/2019 1:22:35 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:05:00 PM
Lab ID: 1911107-008 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	1.9	9.5		mg/Kg	1	11/7/2019 10:52:19 PM	48616
Motor Oil Range Organics (MRO)	ND	47	47		mg/Kg	1	11/7/2019 10:52:19 PM	48616
Surr: DNOP	98.9	0	70-130		%Rec	1	11/7/2019 10:52:19 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.87	2.9		mg/Kg	1	11/6/2019 12:10:32 PM	G64279
Surr: BFB	98.5	0	77.4-118		%Rec	1	11/6/2019 12:10:32 PM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	1.5	1.5		mg/Kg	5	11/14/2019 4:08:50 PM	48795
Chloride	ND	7.5	7.5		mg/Kg	5	11/14/2019 4:08:50 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 4:08:50 PM	48795
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 4:08:50 PM	48795
Sulfate	15	7.5	7.5		mg/Kg	5	11/14/2019 4:08:50 PM	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0033	0.0017	0.032	J	mg/Kg	1	11/19/2019 4:16:20 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.73	4.9		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Arsenic	ND	2.8	4.9		mg/Kg	2	11/25/2019 7:22:34 PM	48651
Barium	270	0.046	0.20		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Beryllium	0.91	0.018	0.30		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Cadmium	ND	0.048	0.20		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Chromium	11	0.16	0.59		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Cobalt	5.7	0.21	0.59		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Iron	17000	72	250		mg/Kg	100	11/22/2019 6:13:01 PM	48651
Lead	2.8	0.48	0.49		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Manganese	680	0.41	2.0		mg/Kg	20	11/26/2019 7:04:01 PM	48651
Nickel	14	0.30	0.99		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Selenium	ND	2.5	4.9		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Silver	ND	0.063	0.49		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Vanadium	15	0.13	4.9		mg/Kg	2	11/22/2019 6:11:25 PM	48651
Zinc	16	0.78	4.9		mg/Kg	2	11/22/2019 6:11:25 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Acenaphthylene	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Aniline	ND	0.13	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Anthracene	ND	0.10	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Azobenzene	ND	0.14	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Benz(a)anthracene	ND	0.094	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:05:00 PM
Lab ID: 1911107-008
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.087	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Benzo(b)fluoranthene	ND	0.086	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Benzo(g,h,i)perylene	ND	0.084	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Benzo(k)fluoranthene	ND	0.089	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Benzoic acid	ND	0.10	0.49		mg/Kg	1	11/11/2019 11:27:11 A	48625
Benzyl alcohol	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Bis(2-chloroethoxy)methane	ND	0.14	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Bis(2-chloroethyl)ether	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Bis(2-chloroisopropyl)ether	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Bis(2-ethylhexyl)phthalate	ND	0.14	0.49		mg/Kg	1	11/11/2019 11:27:11 A	48625
4-Bromophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Butyl benzyl phthalate	ND	0.10	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Carbazole	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
4-Chloro-3-methylphenol	ND	0.15	0.49		mg/Kg	1	11/11/2019 11:27:11 A	48625
4-Chloroaniline	ND	0.14	0.49		mg/Kg	1	11/11/2019 11:27:11 A	48625
2-Chloronaphthalene	ND	0.12	0.24		mg/Kg	1	11/11/2019 11:27:11 A	48625
2-Chlorophenol	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Chrysene	ND	0.086	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Di-n-butyl phthalate	ND	0.15	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
Di-n-octyl phthalate	ND	0.10	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
Dibenz(a,h)anthracene	ND	0.089	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Dibenzofuran	ND	0.13	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
1,2-Dichlorobenzene	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
1,3-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
1,4-Dichlorobenzene	ND	0.10	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
3,3´-Dichlorobenzidine	ND	0.087	0.24		mg/Kg	1	11/11/2019 11:27:11 A	48625
Diethyl phthalate	ND	0.14	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Dimethyl phthalate	ND	0.13	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
2,4-Dichlorophenol	ND	0.11	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
2,4-Dimethylphenol	ND	0.11	0.29		mg/Kg	1	11/11/2019 11:27:11 A	48625
4,6-Dinitro-2-methylphenol	ND	0.090	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
2,4-Dinitrophenol	ND	0.071	0.49		mg/Kg	1	11/11/2019 11:27:11 A	48625
2,4-Dinitrotoluene	ND	0.12	0.49		mg/Kg	1	11/11/2019 11:27:11 A	48625
2,6-Dinitrotoluene	ND	0.13	0.49		mg/Kg	1	11/11/2019 11:27:11 A	48625
Fluoranthene	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Fluorene	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Hexachlorobenzene	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Hexachlorobutadiene	ND	0.14	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:05:00 PM
Lab ID: 1911107-008
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Hexachloroethane	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Indeno(1,2,3-cd)pyrene	ND	0.097	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Isophorone	ND	0.14	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
1-Methylnaphthalene	ND	0.15	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
2-Methylnaphthalene	ND	0.14	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
2-Methylphenol	ND	0.12	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
3+4-Methylphenol	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
N-Nitrosodi-n-propylamine	ND	0.14	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
N-Nitrosodiphenylamine	ND	0.10	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Naphthalene	ND	0.15	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
2-Nitroaniline	ND	0.14	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
3-Nitroaniline	ND	0.13	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
4-Nitroaniline	ND	0.12	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
Nitrobenzene	ND	0.13	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
2-Nitrophenol	ND	0.13	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
4-Nitrophenol	ND	0.13	0.24		mg/Kg	1	11/11/2019 11:27:11 A	48625
Pentachlorophenol	ND	0.10	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
Phenanthrene	ND	0.11	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Phenol	ND	0.12	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Pyrene	ND	0.092	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Pyridine	ND	0.12	0.39		mg/Kg	1	11/11/2019 11:27:11 A	48625
1,2,4-Trichlorobenzene	ND	0.15	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
2,4,5-Trichlorophenol	ND	0.13	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
2,4,6-Trichlorophenol	ND	0.10	0.20		mg/Kg	1	11/11/2019 11:27:11 A	48625
Surr: 2-Fluorophenol	51.6		26.7-85.9		%Rec	1	11/11/2019 11:27:11 A	48625
Surr: Phenol-d5	58.4		18.5-101		%Rec	1	11/11/2019 11:27:11 A	48625
Surr: 2,4,6-Tribromophenol	53.5		35.8-85.6		%Rec	1	11/11/2019 11:27:11 A	48625
Surr: Nitrobenzene-d5	63.0		40.8-95.2		%Rec	1	11/11/2019 11:27:11 A	48625
Surr: 2-Fluorobiphenyl	60.4		34.7-85.2		%Rec	1	11/11/2019 11:27:11 A	48625
Surr: 4-Terphenyl-d14	44.8		37.4-91.3		%Rec	1	11/11/2019 11:27:11 A	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0024	0.014		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Toluene	ND	0.0028	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Ethylbenzene	ND	0.0017	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0068	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2,4-Trimethylbenzene	ND	0.0026	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,3,5-Trimethylbenzene	ND	0.0028	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2-Dichloroethane (EDC)	ND	0.0029	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:05:00 PM
Lab ID: 1911107-008 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0026	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Naphthalene	ND	0.0058	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1-Methylnaphthalene	ND	0.017	0.12		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Acetone	ND	0.024	0.43		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Bromobenzene	ND	0.0028	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Bromodichloromethane	ND	0.0026	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Bromoform	ND	0.0026	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Bromomethane	ND	0.0069	0.086		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
2-Butanone	0.052	0.033	0.29	J	mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Carbon disulfide	ND	0.0095	0.29		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Carbon tetrachloride	ND	0.0027	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Chlorobenzene	ND	0.0037	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Chloroethane	ND	0.0042	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Chloroform	ND	0.0023	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Chloromethane	ND	0.0028	0.086		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
2-Chlorotoluene	ND	0.0025	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
4-Chlorotoluene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
cis-1,2-DCE	ND	0.0039	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
cis-1,3-Dichloropropene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0030	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Dibromochloromethane	ND	0.0020	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Dibromomethane	ND	0.0031	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,3-Dichlorobenzene	ND	0.0025	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,4-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Dichlorodifluoromethane	ND	0.0067	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,1-Dichloroethane	ND	0.0018	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,1-Dichloroethene	ND	0.012	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2-Dichloropropane	ND	0.0021	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,3-Dichloropropane	ND	0.0031	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
2,2-Dichloropropane	ND	0.0094	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,1-Dichloropropene	ND	0.0026	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Hexachlorobutadiene	ND	0.0029	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
2-Hexanone	ND	0.0048	0.29		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Isopropylbenzene	ND	0.0021	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
4-Isopropyltoluene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
4-Methyl-2-pentanone	ND	0.0054	0.29		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Methylene chloride	ND	0.0051	0.086		mg/Kg	1	11/8/2019 1:51:37 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8 (12-14')
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:05:00 PM
Lab ID: 1911107-008 **Matrix:** SOIL **Received Date:** 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0027	0.086		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
n-Propylbenzene	ND	0.0023	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
sec-Butylbenzene	ND	0.0032	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Styrene	ND	0.0023	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
tert-Butylbenzene	ND	0.0027	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0019	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0029	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Tetrachloroethene (PCE)	ND	0.0023	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
trans-1,2-DCE	ND	0.0026	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
trans-1,3-Dichloropropene	ND	0.0030	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2,3-Trichlorobenzene	ND	0.0025	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2,4-Trichlorobenzene	ND	0.0029	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,1,1-Trichloroethane	ND	0.0026	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,1,2-Trichloroethane	ND	0.0020	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Trichloroethene (TCE)	ND	0.0033	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Trichlorofluoromethane	ND	0.0098	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
1,2,3-Trichloropropane	ND	0.0047	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Vinyl chloride	ND	0.0019	0.029		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Xylenes, Total	ND	0.0073	0.058		mg/Kg	1	11/8/2019 1:51:37 AM	S64307
Surr: Dibromofluoromethane	116		70-130		%Rec	1	11/8/2019 1:51:37 AM	S64307
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	11/8/2019 1:51:37 AM	S64307
Surr: Toluene-d8	100		70-130		%Rec	1	11/8/2019 1:51:37 AM	S64307
Surr: 4-Bromofluorobenzene	85.6		70-130		%Rec	1	11/8/2019 1:51:37 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP03
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019
Lab ID: 1911107-009
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	2.0	10		mg/Kg	1	11/7/2019 11:14:00 PM	48616
Motor Oil Range Organics (MRO)	ND	50	50		mg/Kg	1	11/7/2019 11:14:00 PM	48616
Surr: DNOP	93.9	0	70-130		%Rec	1	11/7/2019 11:14:00 PM	48616
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.87	2.9		mg/Kg	1	11/6/2019 12:33:24 PM	G64279
Surr: BFB	98.9	0	77.4-118		%Rec	1	11/6/2019 12:33:24 PM	G64279
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	3.3	1.5	1.5		mg/Kg	5	11/14/2019 4:58:11 PM	48795
Chloride	30	7.5	7.5		mg/Kg	5	11/14/2019 4:58:11 PM	48795
Nitrogen, Nitrite (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 4:58:11 PM	48795
Nitrogen, Nitrate (As N)	ND	1.5	1.5		mg/Kg	5	11/14/2019 4:58:11 PM	48795
Sulfate	480	7.5	7.5		mg/Kg	5	11/14/2019 4:58:11 PM	48795
EPA METHOD 7471: MERCURY							Analyst: **rde**	
Mercury	0.0057	0.0018	0.032	J	mg/Kg	1	11/19/2019 4:18:24 PM	48884
EPA METHOD 6010B: SOIL METALS							Analyst: **pmf**	
Antimony	ND	0.74	5.0		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Arsenic	ND	2.9	5.0		mg/Kg	2	11/25/2019 7:24:24 PM	48651
Barium	160	0.047	0.20		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Beryllium	0.90	0.018	0.30		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Cadmium	ND	0.049	0.20		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Chromium	6.9	0.16	0.60		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Cobalt	4.0	0.21	0.60		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Iron	12000	73	250		mg/Kg	100	11/22/2019 6:16:12 PM	48651
Lead	4.8	0.49	0.50		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Manganese	140	0.042	0.20		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Nickel	7.5	0.30	1.0		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Selenium	ND	2.5	5.0		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Silver	ND	0.064	0.50		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Vanadium	14	0.13	5.0		mg/Kg	2	11/22/2019 6:14:36 PM	48651
Zinc	11	0.80	5.0		mg/Kg	2	11/22/2019 6:14:36 PM	48651
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	0.23	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Acenaphthylene	ND	0.21	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Aniline	ND	0.25	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Anthracene	ND	0.21	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Azobenzene	ND	0.27	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Benz(a)anthracene	ND	0.19	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP03
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019
Lab ID: 1911107-009
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	0.17	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Benzo(b)fluoranthene	ND	0.17	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Benzo(g,h,i)perylene	ND	0.17	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Benzo(k)fluoranthene	ND	0.18	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Benzoic acid	ND	0.20	0.97		mg/Kg	1	11/11/2019 11:56:02 A	48625
Benzyl alcohol	ND	0.24	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Bis(2-chloroethoxy)methane	ND	0.29	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Bis(2-chloroethyl)ether	ND	0.24	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Bis(2-chloroisopropyl)ether	ND	0.22	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Bis(2-ethylhexyl)phthalate	ND	0.28	0.97		mg/Kg	1	11/11/2019 11:56:02 A	48625
4-Bromophenyl phenyl ether	ND	0.23	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Butyl benzyl phthalate	ND	0.20	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Carbazole	ND	0.23	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
4-Chloro-3-methylphenol	ND	0.30	0.97		mg/Kg	1	11/11/2019 11:56:02 A	48625
4-Chloroaniline	ND	0.27	0.97		mg/Kg	1	11/11/2019 11:56:02 A	48625
2-Chloronaphthalene	ND	0.24	0.48		mg/Kg	1	11/11/2019 11:56:02 A	48625
2-Chlorophenol	ND	0.24	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
4-Chlorophenyl phenyl ether	ND	0.21	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Chrysene	ND	0.17	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Di-n-butyl phthalate	ND	0.29	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
Di-n-octyl phthalate	ND	0.20	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
Dibenz(a,h)anthracene	ND	0.18	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Dibenzofuran	ND	0.25	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
1,2-Dichlorobenzene	ND	0.23	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
1,3-Dichlorobenzene	ND	0.20	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
1,4-Dichlorobenzene	ND	0.21	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
3,3´-Dichlorobenzidine	ND	0.17	0.48		mg/Kg	1	11/11/2019 11:56:02 A	48625
Diethyl phthalate	ND	0.28	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Dimethyl phthalate	ND	0.26	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
2,4-Dichlorophenol	ND	0.23	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
2,4-Dimethylphenol	ND	0.21	0.58		mg/Kg	1	11/11/2019 11:56:02 A	48625
4,6-Dinitro-2-methylphenol	ND	0.18	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
2,4-Dinitrophenol	ND	0.14	0.97		mg/Kg	1	11/11/2019 11:56:02 A	48625
2,4-Dinitrotoluene	ND	0.23	0.97		mg/Kg	1	11/11/2019 11:56:02 A	48625
2,6-Dinitrotoluene	ND	0.26	0.97		mg/Kg	1	11/11/2019 11:56:02 A	48625
Fluoranthene	ND	0.22	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Fluorene	ND	0.22	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Hexachlorobenzene	ND	0.24	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Hexachlorobutadiene	ND	0.27	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP03
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019
Lab ID: 1911107-009
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	0.22	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Hexachloroethane	ND	0.22	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Indeno(1,2,3-cd)pyrene	ND	0.19	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Isophorone	ND	0.29	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
1-Methylnaphthalene	ND	0.29	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
2-Methylnaphthalene	ND	0.28	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
2-Methylphenol	ND	0.23	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
3+4-Methylphenol	ND	0.24	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
N-Nitrosodi-n-propylamine	ND	0.28	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
N-Nitrosodiphenylamine	ND	0.20	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Naphthalene	ND	0.29	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
2-Nitroaniline	ND	0.28	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
3-Nitroaniline	ND	0.27	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
4-Nitroaniline	ND	0.25	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
Nitrobenzene	ND	0.27	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
2-Nitrophenol	ND	0.26	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
4-Nitrophenol	ND	0.26	0.48		mg/Kg	1	11/11/2019 11:56:02 A	48625
Pentachlorophenol	ND	0.20	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
Phenanthrene	ND	0.21	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Phenol	ND	0.24	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Pyrene	ND	0.18	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Pyridine	ND	0.23	0.78		mg/Kg	1	11/11/2019 11:56:02 A	48625
1,2,4-Trichlorobenzene	ND	0.30	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
2,4,5-Trichlorophenol	ND	0.25	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
2,4,6-Trichlorophenol	ND	0.20	0.39		mg/Kg	1	11/11/2019 11:56:02 A	48625
Surr: 2-Fluorophenol	51.5		26.7-85.9		%Rec	1	11/11/2019 11:56:02 A	48625
Surr: Phenol-d5	63.3		18.5-101		%Rec	1	11/11/2019 11:56:02 A	48625
Surr: 2,4,6-Tribromophenol	59.6		35.8-85.6		%Rec	1	11/11/2019 11:56:02 A	48625
Surr: Nitrobenzene-d5	61.2		40.8-95.2		%Rec	1	11/11/2019 11:56:02 A	48625
Surr: 2-Fluorobiphenyl	68.8		34.7-85.2		%Rec	1	11/11/2019 11:56:02 A	48625
Surr: 4-Terphenyl-d14	51.0		37.4-91.3		%Rec	1	11/11/2019 11:56:02 A	48625
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0024	0.014		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Toluene	ND	0.0028	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Ethylbenzene	ND	0.0017	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.0068	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2,4-Trimethylbenzene	ND	0.0026	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,3,5-Trimethylbenzene	ND	0.0028	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2-Dichloroethane (EDC)	ND	0.0029	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP03
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019
Lab ID: 1911107-009
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,2-Dibromoethane (EDB)	ND	0.0026	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Naphthalene	ND	0.0058	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1-Methylnaphthalene	ND	0.017	0.12		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
2-Methylnaphthalene	ND	0.013	0.12		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Acetone	ND	0.024	0.43		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Bromobenzene	ND	0.0028	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Bromodichloromethane	ND	0.0026	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Bromoform	ND	0.0026	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Bromomethane	ND	0.0069	0.086		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
2-Butanone	0.047	0.033	0.29	J	mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Carbon disulfide	ND	0.0095	0.29		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Carbon tetrachloride	ND	0.0027	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Chlorobenzene	ND	0.0037	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Chloroethane	ND	0.0042	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Chloroform	ND	0.0023	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Chloromethane	ND	0.0028	0.086		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
2-Chlorotoluene	ND	0.0025	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
4-Chlorotoluene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
cis-1,2-DCE	ND	0.0039	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
cis-1,3-Dichloropropene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0030	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Dibromochloromethane	ND	0.0020	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Dibromomethane	ND	0.0031	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,3-Dichlorobenzene	ND	0.0025	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,4-Dichlorobenzene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Dichlorodifluoromethane	ND	0.0067	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,1-Dichloroethane	ND	0.0018	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,1-Dichloroethene	ND	0.012	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2-Dichloropropane	ND	0.0021	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,3-Dichloropropane	ND	0.0031	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
2,2-Dichloropropane	ND	0.0094	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,1-Dichloropropene	ND	0.0026	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Hexachlorobutadiene	ND	0.0029	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
2-Hexanone	ND	0.0048	0.29		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Isopropylbenzene	ND	0.0021	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
4-Isopropyltoluene	ND	0.0024	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
4-Methyl-2-pentanone	ND	0.0054	0.29		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Methylene chloride	ND	0.0051	0.086		mg/Kg	1	11/8/2019 2:20:36 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP03
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019
Lab ID: 1911107-009
Matrix: SOIL
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
n-Butylbenzene	ND	0.0027	0.086		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
n-Propylbenzene	ND	0.0023	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
sec-Butylbenzene	ND	0.0032	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Styrene	ND	0.0023	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
tert-Butylbenzene	ND	0.0027	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0019	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0029	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Tetrachloroethene (PCE)	ND	0.0023	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
trans-1,2-DCE	ND	0.0026	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
trans-1,3-Dichloropropene	ND	0.0030	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2,3-Trichlorobenzene	ND	0.0025	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2,4-Trichlorobenzene	ND	0.0029	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,1,1-Trichloroethane	ND	0.0026	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,1,2-Trichloroethane	ND	0.0020	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Trichloroethene (TCE)	ND	0.0033	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Trichlorofluoromethane	ND	0.0098	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
1,2,3-Trichloropropane	ND	0.0047	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Vinyl chloride	ND	0.0019	0.029		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Xylenes, Total	ND	0.0073	0.058		mg/Kg	1	11/8/2019 2:20:36 AM	S64307
Surr: Dibromofluoromethane	117		70-130		%Rec	1	11/8/2019 2:20:36 AM	S64307
Surr: 1,2-Dichloroethane-d4	105		70-130		%Rec	1	11/8/2019 2:20:36 AM	S64307
Surr: Toluene-d8	102		70-130		%Rec	1	11/8/2019 2:20:36 AM	S64307
Surr: 4-Bromofluorobenzene	87.1		70-130		%Rec	1	11/8/2019 2:20:36 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: MeOH Blank
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911107-010
Matrix: MEOH BLAN
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
Benzene	ND	0.0041	0.025		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Toluene	ND	0.0048	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Ethylbenzene	ND	0.0029	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Methyl tert-butyl ether (MTBE)	ND	0.012	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2,4-Trimethylbenzene	ND	0.0046	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,3,5-Trimethylbenzene	ND	0.0048	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2-Dichloroethane (EDC)	ND	0.0051	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2-Dibromoethane (EDB)	ND	0.0046	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Naphthalene	ND	0.010	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1-Methylnaphthalene	ND	0.029	0.20		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
2-Methylnaphthalene	ND	0.022	0.20		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Acetone	ND	0.041	0.75		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Bromobenzene	ND	0.0048	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Bromodichloromethane	ND	0.0046	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Bromoform	ND	0.0045	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Bromomethane	ND	0.012	0.15		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
2-Butanone	0.065	0.058	0.50	J	mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Carbon disulfide	ND	0.017	0.50		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Carbon tetrachloride	ND	0.0047	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Chlorobenzene	ND	0.0064	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Chloroethane	ND	0.0074	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Chloroform	ND	0.0040	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Chloromethane	ND	0.0048	0.15		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
2-Chlorotoluene	ND	0.0044	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
4-Chlorotoluene	ND	0.0041	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
cis-1,2-DCE	ND	0.0068	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
cis-1,3-Dichloropropene	ND	0.0042	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2-Dibromo-3-chloropropane	ND	0.0051	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Dibromochloromethane	ND	0.0035	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Dibromomethane	ND	0.0054	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,3-Dichlorobenzene	ND	0.0043	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,4-Dichlorobenzene	ND	0.0042	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Dichlorodifluoromethane	ND	0.012	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,1-Dichloroethane	ND	0.0032	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,1-Dichloroethene	ND	0.020	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2-Dichloropropane	ND	0.0036	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,3-Dichloropropane	ND	0.0054	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
2,2-Dichloropropane	ND	0.016	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: MeOH Blank
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911107-010
Matrix: MEOH BLAN
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **DJF**	
1,1-Dichloropropene	ND	0.0046	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Hexachlorobutadiene	ND	0.0051	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
2-Hexanone	ND	0.0083	0.50		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Isopropylbenzene	ND	0.0036	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
4-Isopropyltoluene	ND	0.0041	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
4-Methyl-2-pentanone	ND	0.0094	0.50		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Methylene chloride	ND	0.0088	0.15		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
n-Butylbenzene	ND	0.0047	0.15		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
n-Propylbenzene	ND	0.0040	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
sec-Butylbenzene	ND	0.0056	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Styrene	ND	0.0039	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
tert-Butylbenzene	ND	0.0047	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,1,1,2-Tetrachloroethane	ND	0.0034	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,1,2,2-Tetrachloroethane	ND	0.0051	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Tetrachloroethene (PCE)	ND	0.0040	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
trans-1,2-DCE	ND	0.0046	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
trans-1,3-Dichloropropene	ND	0.0053	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2,3-Trichlorobenzene	ND	0.0044	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2,4-Trichlorobenzene	ND	0.0051	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,1,1-Trichloroethane	ND	0.0045	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,1,2-Trichloroethane	ND	0.0035	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Trichloroethene (TCE)	ND	0.0058	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Trichlorofluoromethane	ND	0.017	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
1,2,3-Trichloropropane	ND	0.0081	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Vinyl chloride	ND	0.0033	0.050		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Xylenes, Total	ND	0.013	0.10		mg/Kg	1	11/8/2019 2:49:32 AM	S64307
Surr: Dibromofluoromethane	115		70-130		%Rec	1	11/8/2019 2:49:32 AM	S64307
Surr: 1,2-Dichloroethane-d4	100		70-130		%Rec	1	11/8/2019 2:49:32 AM	S64307
Surr: Toluene-d8	102		70-130		%Rec	1	11/8/2019 2:49:32 AM	S64307
Surr: 4-Bromofluorobenzene	83.6		70-130		%Rec	1	11/8/2019 2:49:32 AM	S64307

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB110419
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:45:00 PM
Lab ID: 1911107-011
Matrix: AQUEOUS
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **CLP**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/12/2019 10:13:44 A	48696
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/12/2019 10:13:44 A	48696
Surr: DNOP	120	0	81.5-152		%Rec	1	11/12/2019 10:13:44 A	48696
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/12/2019 9:34:45 AM	G64438
Surr: BFB	110	0	65.8-143		%Rec	1	11/12/2019 9:34:45 AM	G64438
EPA METHOD 300.0: ANIONS							Analyst: **MRA**	
Fluoride	ND	0.029	0.10		mg/L	1	11/5/2019 10:21:26 PM	R64254
Chloride	ND	0.50	0.50		mg/L	1	11/5/2019 10:21:26 PM	R64254
Nitrogen, Nitrite (As N)	ND	0.0054	0.10		mg/L	1	11/5/2019 10:21:26 PM	R64254
Nitrogen, Nitrate (As N)	0.025	0.0061	0.10	J	mg/L	1	11/5/2019 10:21:26 PM	R64254
Sulfate	ND	0.067	0.50		mg/L	1	11/5/2019 10:21:26 PM	R64254
EPA METHOD 7470: MERCURY							Analyst: **pmf**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/13/2019 12:00:52 P	48730
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: **rde**	
Antimony	ND	0.0081	0.050		mg/L	1	11/25/2019 12:45:35 P	48678
Arsenic	ND	0.015	0.020		mg/L	1	11/25/2019 3:54:01 PM	48678
Barium	ND	0.0012	0.020		mg/L	1	11/25/2019 12:45:35 P	48678
Beryllium	0.00040	0.00025	0.0030	J	mg/L	1	11/25/2019 12:45:35 P	48678
Cadmium	0.00075	0.00055	0.0020	J	mg/L	1	11/25/2019 12:45:35 P	48678
Chromium	0.0024	0.00086	0.0060	J	mg/L	1	11/25/2019 12:45:35 P	48678
Cobalt	ND	0.0012	0.0060		mg/L	1	11/25/2019 12:45:35 P	48678
Iron	0.018	0.0093	0.020	J	mg/L	1	11/25/2019 12:45:35 P	48678
Lead	ND	0.0035	0.0050		mg/L	1	11/25/2019 12:45:35 P	48678
Manganese	0.00089	0.00041	0.0020	J	mg/L	1	11/25/2019 12:45:35 P	48678
Nickel	ND	0.0028	0.010		mg/L	1	11/25/2019 12:45:35 P	48678
Selenium	ND	0.035	0.050		mg/L	1	11/25/2019 12:45:35 P	48678
Silver	0.00072	0.00055	0.0050	J	mg/L	1	11/25/2019 12:45:35 P	48678
Vanadium	0.0018	0.00086	0.050	J	mg/L	1	11/25/2019 12:45:35 P	48678
Zinc	ND	0.011	0.020		mg/L	1	11/25/2019 12:45:35 P	48678
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Acenaphthene	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Acenaphthylene	ND	2.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Aniline	ND	3.6	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Anthracene	ND	2.7	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Azobenzene	ND	3.3	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Benz(a)anthracene	ND	3.6	10		µg/L	1	11/14/2019 4:51:04 PM	48694

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB110419
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:45:00 PM
Lab ID: 1911107-011
Matrix: AQUEOUS
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Benzo(a)pyrene	ND	3.5	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Benzoic acid	ND	11	20		µg/L	1	11/14/2019 4:51:04 PM	48694
Benzyl alcohol	ND	2.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	11/14/2019 4:51:04 PM	48694
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Carbazole	ND	2.9	10		µg/L	1	11/14/2019 4:51:04 PM	48694
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
4-Chloroaniline	ND	2.3	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2-Chloronaphthalene	ND	3.1	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2-Chlorophenol	ND	2.7	10		µg/L	1	11/14/2019 4:51:04 PM	48694
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Chrysene	ND	2.8	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Dibenzofuran	ND	3.2	10		µg/L	1	11/14/2019 4:51:04 PM	48694
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	11/14/2019 4:51:04 PM	48694
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	11/14/2019 4:51:04 PM	48694
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
3,3´-Dichlorobenzidine	ND	2.8	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Diethyl phthalate	ND	2.9	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Dimethyl phthalate	ND	3.2	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	11/14/2019 4:51:04 PM	48694
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	11/14/2019 4:51:04 PM	48694
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	11/14/2019 4:51:04 PM	48694
2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Fluoranthene	ND	2.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Fluorene	ND	2.9	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Hexachlorobenzene	ND	3.1	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Hexachlorobutadiene	ND	4.7	10		µg/L	1	11/14/2019 4:51:04 PM	48694

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB110419
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:45:00 PM
Lab ID: 1911107-011
Matrix: AQUEOUS
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: **JDC**	
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Hexachloroethane	ND	4.8	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Isophorone	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
1-Methylnaphthalene	ND	3.1	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2-Methylnaphthalene	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2-Methylphenol	ND	2.9	10		µg/L	1	11/14/2019 4:51:04 PM	48694
3+4-Methylphenol	ND	3.6	10		µg/L	1	11/14/2019 4:51:04 PM	48694
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	11/14/2019 4:51:04 PM	48694
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Naphthalene	ND	4.1	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2-Nitroaniline	ND	3.2	10		µg/L	1	11/14/2019 4:51:04 PM	48694
3-Nitroaniline	ND	3.2	10		µg/L	1	11/14/2019 4:51:04 PM	48694
4-Nitroaniline	ND	2.7	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Nitrobenzene	ND	2.8	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2-Nitrophenol	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
4-Nitrophenol	ND	7.6	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Pentachlorophenol	ND	2.7	20		µg/L	1	11/14/2019 4:51:04 PM	48694
Phenanthrene	ND	2.8	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Phenol	ND	8.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Pyrene	ND	2.5	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Pyridine	ND	9.6	10		µg/L	1	11/14/2019 4:51:04 PM	48694
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	11/14/2019 4:51:04 PM	48694
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	11/14/2019 4:51:04 PM	48694
Surr: 2-Fluorophenol	44.8	0	15-101		%Rec	1	11/14/2019 4:51:04 PM	48694
Surr: Phenol-d5	36.6	0	15-84.6		%Rec	1	11/14/2019 4:51:04 PM	48694
Surr: 2,4,6-Tribromophenol	54.3	0	27.8-112		%Rec	1	11/14/2019 4:51:04 PM	48694
Surr: Nitrobenzene-d5	68.0	0	33-113		%Rec	1	11/14/2019 4:51:04 PM	48694
Surr: 2-Fluorobiphenyl	66.1	0	26.6-107		%Rec	1	11/14/2019 4:51:04 PM	48694
Surr: 4-Terphenyl-d14	40.4	0	18.7-148		%Rec	1	11/14/2019 4:51:04 PM	48694
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Benzene	ND	0.17	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Toluene	ND	0.35	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB110419
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:45:00 PM
Lab ID: 1911107-011
Matrix: AQUEOUS
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Naphthalene	ND	0.28	2.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Acetone	ND	1.2	10		µg/L	1	11/7/2019 4:21:19 PM	W6431
Bromobenzene	ND	0.24	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Bromoform	ND	0.29	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Bromomethane	ND	0.27	3.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
2-Butanone	3.7	2.1	10	J	µg/L	1	11/7/2019 4:21:19 PM	W6431
Carbon disulfide	ND	0.45	10		µg/L	1	11/7/2019 4:21:19 PM	W6431
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Chloroethane	ND	0.18	2.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Chloroform	ND	0.12	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Chloromethane	ND	0.32	3.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Dibromomethane	ND	0.21	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
2-Hexanone	ND	1.5	10		µg/L	1	11/7/2019 4:21:19 PM	W6431
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/7/2019 4:21:19 PM	W6431

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB110419
Project: Sanitary Sewer Lagoon
Collection Date: 11/4/2019 1:45:00 PM
Lab ID: 1911107-011
Matrix: AQUEOUS
Received Date: 11/4/2019 4:35:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **JMR**	
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Styrene	ND	0.19	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/7/2019 4:21:19 PM	W6431
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/7/2019 4:21:19 PM	W6431
Surr: 1,2-Dichloroethane-d4	89.1	0	70-130		%Rec	1	11/7/2019 4:21:19 PM	W6431
Surr: 4-Bromofluorobenzene	90.9	0	70-130		%Rec	1	11/7/2019 4:21:19 PM	W6431
Surr: Dibromofluoromethane	98.5	0	70-130		%Rec	1	11/7/2019 4:21:19 PM	W6431
Surr: Toluene-d8	97.0	0	70-130		%Rec	1	11/7/2019 4:21:19 PM	W6431

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

Qualifiers:

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

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 18, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1158116

Samples Received: 11/07/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 5

Sr: Sample Results 6

1911107-001B SL-7 (0-0.5') L1158116-01 6

1911107-002B SL-7 (2-2.5') L1158116-02 7

1911107-003N SL-7 (2.5-4') L1158116-03 8

1911107-004B SL-7 (10-12') L1158116-04 9

1911107-005B SL-8 (0-0.5') L1158116-05 10

1911107-006B SL-8 (2-2.5') L1158116-06 11

1911107-007B SL-8 (2.5-4') L1158116-07 12

1911107-008B SL-8 (12-14') L1158116-08 13

1911107-009B DUP03 L1158116-09 14

1911107-011F EB110419 L1158116-10 15

1911107-011G EB110419 L1158116-11 16

Qc: Quality Control Summary 17

Wet Chemistry by Method 3060A/7196A 17

Wet Chemistry by Method 3500Cr C-2011 18

Wet Chemistry by Method 4500CN E-2011 19

Wet Chemistry by Method 9012B 21

Gl: Glossary of Terms 24

Al: Accreditations & Locations 25

Sc: Sample Chain of Custody 26

1911107-001B SL-7 (0-0.5') L1158116-01 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 10:05	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:03	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1379337	1	11/13/19 08:00	11/13/19 11:36	SDL	Mt. Juliet, TN

1911107-002B SL-7 (2-2.5') L1158116-02 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 10:25	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:04	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1379337	1	11/13/19 08:00	11/13/19 11:37	SDL	Mt. Juliet, TN

1911107-003N SL-7 (2.5-4') L1158116-03 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 10:40	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:05	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1379337	1	11/13/19 08:00	11/13/19 11:40	SDL	Mt. Juliet, TN

1911107-004B SL-7 (10-12') L1158116-04 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 10:50	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:05	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1379337	1	11/13/19 08:00	11/13/19 11:41	SDL	Mt. Juliet, TN

1911107-005B SL-8 (0-0.5') L1158116-05 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 12:35	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:05	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1379337	1	11/13/19 08:00	11/13/19 11:45	SDL	Mt. Juliet, TN

1911107-006B SL-8 (2-2.5') L1158116-06 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 12:45	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:06	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1379337	1	11/13/19 08:00	11/13/19 11:46	SDL	Mt. Juliet, TN

1911107-007B SL-8 (2.5-4') L1158116-07 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 12:55	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:06	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1379337	1	11/13/19 08:00	11/13/19 11:47	SDL	Mt. Juliet, TN

1911107-008B SL-8 (12-14') L1158116-08 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 13:05	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:06	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1380017	1	11/14/19 08:00	11/14/19 13:56	SDL	Mt. Juliet, TN

1911107-009B DUP03 L1158116-09 Solid

Collected by	Collected date/time	Received date/time
	11/04/19 00:00	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3060A/7196A	WG1377539	1	11/08/19 14:10	11/09/19 18:06	JIC	Mt. Juliet, TN
Wet Chemistry by Method 9012B	WG1382062	1	11/17/19 12:00	11/18/19 10:42	SDL	Mt. Juliet, TN

1911107-011F EB110419 L1158116-10 WW

Collected by	Collected date/time	Received date/time
	11/04/19 13:45	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 3500Cr C-2011	WG1379383	1	11/12/19 19:02	11/12/19 19:02	GB	Mt. Juliet, TN

1911107-011G EB110419 L1158116-11 WW

Collected by	Collected date/time	Received date/time
	11/04/19 13:45	11/07/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500CN E-2011	WG1379413	1	11/13/19 08:50	11/14/19 10:06	SDL	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:03	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.134	B J	0.0390	0.250	1	11/13/2019 11:36	WG1379337

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:04	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.0422	B J	0.0390	0.250	1	11/13/2019 11:37	WG1379337

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:05	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/13/2019 11:40	WG1379337

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:05	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/13/2019 11:41	WG1379337

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	2.72		0.640	2.00	1	11/09/2019 18:05	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.791		0.0390	0.250	1	11/13/2019 11:45	WG1379337

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:06	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/13/2019 11:46	WG1379337

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:06	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.154	B J	0.0390	0.250	1	11/13/2019 11:47	WG1379337

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:06	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/14/2019 13:56	WG1380017

Wet Chemistry by Method 3060A/7196A

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Chromium,Hexavalent	U		0.640	2.00	1	11/09/2019 18:06	WG1377539

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0390	0.250	1	11/18/2019 10:42	WG1382062

Wet Chemistry by Method 3500Cr C-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/12/2019 19:02	WG1379383

Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Cyanide	U		0.00180	0.00500	1	11/14/2019 10:06	WG1379413

Method Blank (MB)

(MB) R3470253-1 11/09/19 17:59

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Chromium,Hexavalent	U		0.640	2.00

L1158116-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1158116-02 11/09/19 18:04 • (DUP) R3470253-3 11/09/19 18:04

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	U	0.000	1	0.000		20

L1158579-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1158579-03 11/09/19 18:27 • (DUP) R3470253-7 11/09/19 18:27

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Chromium,Hexavalent	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3470253-2 11/09/19 18:01

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chromium,Hexavalent	24.0	20.1	83.8	80.0-120	

L1158579-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1158579-01 11/09/19 18:07 • (MS) R3470253-4 11/09/19 18:07 • (MSD) R3470253-5 11/09/19 18:08

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 %
Chromium,Hexavalent	20.0	ND	16.1	16.2	80.6	80.9	1	75.0-125			0.364	20

L1158579-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1158579-01 11/09/19 18:07 • (MS) R3470253-6 11/09/19 18:24

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Chromium,Hexavalent	680	ND	798	117	50	75.0-125	

Method Blank (MB)

(MB) R3471245-1 11/12/19 18:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1156950-20 Original Sample (OS) • Duplicate (DUP)

(OS) L1156950-20 11/12/19 18:46 • (DUP) R3471245-3 11/12/19 18:55

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

L1159589-07 Original Sample (OS) • Duplicate (DUP)

(OS) L1159589-07 11/12/19 22:12 • (DUP) R3471245-7 11/12/19 22:19

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.000400	0.000351	1	13.0	J	20

Laboratory Control Sample (LCS)

(LCS) R3471245-2 11/12/19 18:15

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	0.00200	0.00195	97.3	90.0-110	

L1158116-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1158116-10 11/12/19 19:02 • (MS) R3471245-4 11/12/19 19:10

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	0.0500	U	0.0496	99.3	1	90.0-110	

L1159589-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1159589-03 11/12/19 21:35 • (MS) R3471245-5 11/12/19 21:42 • (MSD) R3471245-6 11/12/19 21:50

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 %
Hexavalent Chromium	0.0500	0.00251	0.0522	0.0526	99.3	100	1	90.0-110			0.818	20

Method Blank (MB)

(MB) R3471839-1 11/13/19 16:15

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

L1156966-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1156966-02 11/13/19 16:24 • (DUP) R3471839-3 11/13/19 16:27

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

L1157826-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1157826-08 11/14/19 10:00 • (DUP) R3471839-8 11/14/19 10:01

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	0.00399	0.000	1	200	P1	20

Laboratory Control Sample (LCS)

(LCS) R3471839-2 11/13/19 16:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	0.100	0.0945	94.5	85.0-115	

L1157104-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157104-02 11/13/19 16:29 • (MS) R3471839-4 11/13/19 16:30 • (MSD) R3471839-5 11/13/19 16:31

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 %
Cyanide	0.100	ND	0.0868	0.0880	83.7	84.9	1	75.0-125			1.37	20

L1157825-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157825-14 11/13/19 16:34 • (MS) R3471839-6 11/13/19 16:35 • (MSD) R3471839-7 11/13/19 16:36

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 %
Cyanide	0.100	U	0.0784	0.0822	78.4	82.2	1	75.0-125			4.73	20

L1157825-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157825-14 11/13/19 16:34 • (MS) R3471839-6 11/13/19 16:35 • (MSD) R3471839-7 11/13/19 16:36

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 %

Sample Narrative:

OS: Sample field filtered

Method Blank (MB)

(MB) R3471441-1 11/13/19 11:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	0.0670	J	0.0390	0.250

L1157826-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1157826-01 11/13/19 11:15 • (DUP) R3471441-3 11/13/19 11:16

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	0.218	0.242	1	10.3	J	20

L1158177-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1158177-02 11/13/19 11:49 • (DUP) R3471441-8 11/13/19 11:50

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3471441-2 11/13/19 11:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.75	110	50.0-150	

L1157826-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1157826-03 11/13/19 11:53 • (MS) R3471441-4 11/13/19 11:30 • (MSD) R3471441-5 11/13/19 11:31

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 %
Cyanide	1.67	U	1.46	1.38	87.5	82.7	1	75.0-125			5.66	20

L1158116-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1158116-04 11/13/19 11:41 • (MS) R3471441-6 11/13/19 11:42 • (MSD) R3471441-7 11/13/19 11:44

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 %
Cyanide	1.67	U	1.54	1.48	92.5	88.8	1	75.0-125			4.08	20

Method Blank (MB)

(MB) R3472030-1 11/14/19 13:47

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L1157700-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1157700-02 11/14/19 13:51 • (DUP) R3472030-3 11/14/19 13:52

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	0.380	0.378	1	0.536		20

Laboratory Control Sample (LCS)

(LCS) R3472030-2 11/14/19 13:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.45	98.0	50.0-150	

L1158116-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1158116-08 11/14/19 13:56 • (MS) R3472030-4 11/14/19 13:59 • (MSD) R3472030-5 11/14/19 14:00

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 %
Cyanide	1.67	U	1.31	1.44	78.6	86.2	1	75.0-125			9.21	20

Method Blank (MB)

(MB) R3473101-1 11/18/19 10:37

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

Laboratory Control Sample (LCS)

(LCS) R3473101-2 11/18/19 10:38

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Cyanide	2.50	2.28	91.3	50.0-150	

L1159394-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1159394-01 11/18/19 10:55 • (MS) R3473101-4 11/18/19 10:56 • (MSD) R3473101-5 11/18/19 10:57

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 %
Cyanide	1.67	U	1.25	1.25	74.9	74.9	1	75.0-125	J6	J6	0.0297	20

L1159703-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1159703-01 11/18/19 10:58 • (MS) R3473101-6 11/18/19 11:01 • (MSD) R3473101-7 11/18/19 11:02

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 %
Cyanide	1.67	0.508	1.23	1.20	43.1	41.4	1	75.0-125	J6	J6	2.41	20

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

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.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

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

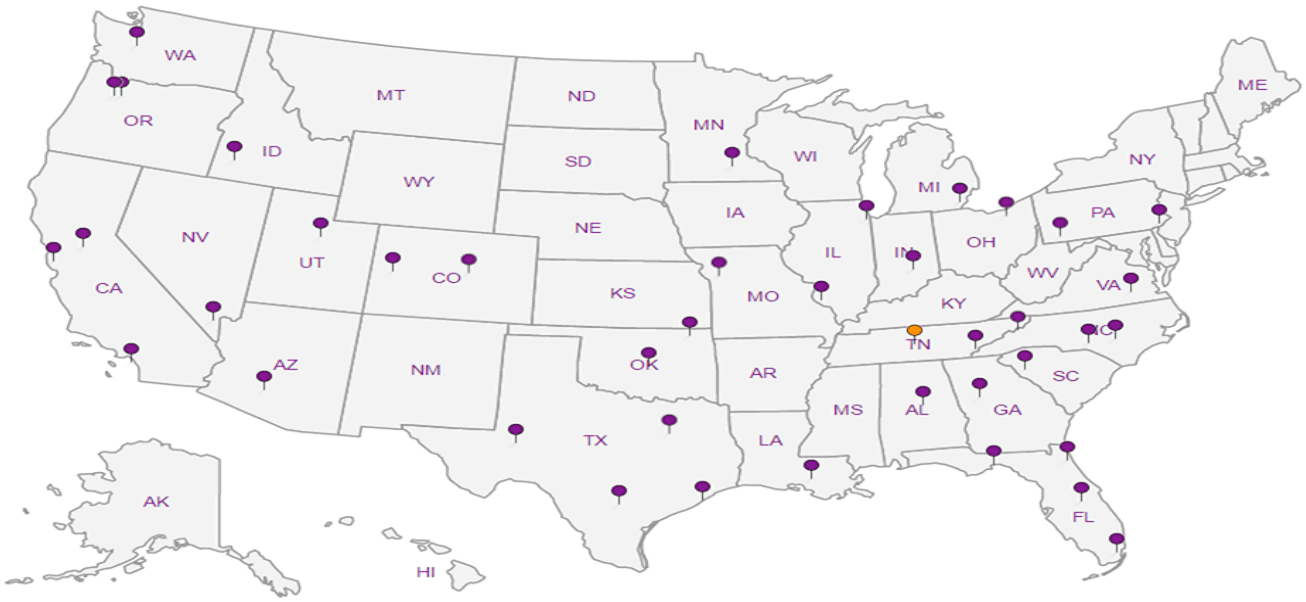
Third Party Federal Accreditations

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 RECORD

PAGE: 1 OF: 1

E064

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

SUB CONTRATOR:	ESC PACE	COMPANY: ESC PACE	PHONE: (800) 767-5859	FAX: (615) 758-5859	
ADDRESS:	12065 Lebanon Rd		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	Mt. Juliet, TN 37122				

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1911107-001B	SL-7 (0-0.5')	4OZGU	Soil	11/4/2019 10:05:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6 | 158116 -01
2	1911107-002B	SL-7 (2-2.5')	4OZGU	Soil	11/4/2019 10:25:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6 02
3	1911107-003B	SL-7 (2.5-4')	4OZGU	Soil	11/4/2019 10:40:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6 03
4	1911107-004B	SL-7 (10-12')	4OZGU	Soil	11/4/2019 10:50:00 AM	1	Lv. 4 J and MDL **Total CN and Cr6 04
5	1911107-005B	SL-8 (0-0.5')	4OZGU	Soil	11/4/2019 12:35:00 PM	1	Lv. 4 J and MDL **Total CN and Cr6 05
6	1911107-006B	SL-8 (2-2.5')	4OZGU	Soil	11/4/2019 12:45:00 PM	1	Lv. 4 J and MDL **Total CN and Cr6 06
7	1911107-007B	SL-8 (2.5-4')	4OZGU	Soil	11/4/2019 12:55:00 PM	1	Lv. 4 J and MDL **Total CN and Cr6 07
8	1911107-008B	SL-8 (12-14')	4OZGU	Soil	11/4/2019 1:05:00 PM	1	Lv. 4 J and MDL **Total CN and Cr6 08
9	1911107-009B	DUP03	4OZGU	Soil	11/4/2019	1	Lv. 4 J and MDL **Total CN and Cr6 09
10	1911107-011F	EB110419	120mL	Aqueous	11/4/2019 1:45:00 PM	1	Lv. 4 J and MDL **Cr6 10
11	1911107-011G	EB110419	500AMBHDPE-NAOH	Aqueous	11/4/2019 1:45:00 PM	1	Lv. 4 J and MDL** Total CN for GW 717 11

CCOSI

RAD SCREEN: <0.5 mR/hr

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By: LB	Date: 11/5/2019	Time: 5:03 PM	Received By: Carol Kemp	Date: 11/7/19	Time: 8:30
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 1.8-2.1 °C Attempt to Cool ?
Comments:

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANA	115816	
Cooler Received/Opened On: 11/7/19 Temperature:	1.6	
Received By: Carol Kemp		
Signature: Carol Kemp		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48795**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **48795**	RunNo: **64512**
Prep Date: **11/14/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209492** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: **LCS-48795**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **48795**	RunNo: **64512**
Prep Date: **11/14/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209493** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	102	90	110			
Chloride	14	1.5	15.00	0	95.1	90	110			
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	95.7	90	110			
Nitrogen, Nitrate (As N)	7.5	0.30	7.500	0	99.4	90	110			
Sulfate	29	1.5	30.00	0	96.5	90	110			

Sample ID: **1911107-001AMS**	SampType: **ms**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-7 (0-0.5')**	Batch ID: **48795**	RunNo: **64512**
Prep Date: **11/14/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209495** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	130	7.5	15.00	116.1	75.9	54	141			
Nitrogen, Nitrite (As N)	2.6	1.5	3.000	0	86.1	69.3	117			
Nitrogen, Nitrate (As N)	27	1.5	7.500	21.33	80.9	54.4	142			

Sample ID: **1911107-001AMSD**	SampType: **msd**	TestCode: **EPA Method 300.0: Anions**
Client ID: **SL-7 (0-0.5')**	Batch ID: **48795**	RunNo: **64512**
Prep Date: **11/14/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209496** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	130	7.5	15.00	116.1	109	54.5	140	3.87	20	
Nitrogen, Nitrite (As N)	2.5	1.5	3.000	0	84.7	69.5	116	1.69	20	
Nitrogen, Nitrate (As N)	28	1.5	7.500	21.33	91.6	54.8	141	2.89	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64254**	RunNo: **64254**
Prep Date:	Analysis Date: **11/5/2019**	SeqNo: **2198963** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64254**	RunNo: **64254**
Prep Date:	Analysis Date: **11/5/2019**	SeqNo: **2198964** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.8	0.50	5.000	0	96.3	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	93.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	90	110			
Sulfate	9.6	0.50	10.00	0	95.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48696**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **48696**	RunNo: **64417**
Prep Date: **11/11/2019**	Analysis Date: **11/12/2019**	SeqNo: **2204732** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.56		0.5000		113	81.5	152			

Sample ID: **LCS-48696**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **48696**	RunNo: **64417**
Prep Date: **11/11/2019**	Analysis Date: **11/12/2019**	SeqNo: **2204733** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.40	2.500	0	121	82	138			
Surr: DNOP	0.28		0.2500		112	81.5	152			

Sample ID: **1911107-011BMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **EB110419**	Batch ID: **48696**	RunNo: **64417**
Prep Date: **11/11/2019**	Analysis Date: **11/12/2019**	SeqNo: **2205376** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.40	2.500	0	121	68.3	147			
Surr: DNOP	0.28		0.2500		114	81.5	152			

Sample ID: **1911107-011BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **EB110419**	Batch ID: **48696**	RunNo: **64417**
Prep Date: **11/11/2019**	Analysis Date: **11/12/2019**	SeqNo: **2205377** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.40	2.500	0	119	68.3	147	1.54	20	
Surr: DNOP	0.27		0.2500		110	81.5	152	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48616**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **48616**	RunNo: **64266**
Prep Date: **11/6/2019**	Analysis Date: **11/7/2019**	SeqNo: **2200977** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	110	63.9	124			
Surr: DNOP	4.9		5.000		97.0	70	130			

Sample ID: **MB-48616**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **48616**	RunNo: **64266**
Prep Date: **11/6/2019**	Analysis Date: **11/7/2019**	SeqNo: **2200978** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		110	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **G64279**	RunNo: **64279**
Prep Date:	Analysis Date: **11/6/2019**	SeqNo: **2199899** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.1	77.4	118			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **G64279**	RunNo: **64279**
Prep Date:	Analysis Date: **11/6/2019**	SeqNo: **2199900** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	92.9	80	120			
Surr: BFB	1100		1000		111	77.4	118			

Sample ID: **1911107-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SL-7 (0-0.5')**	Batch ID: **G64279**	RunNo: **64279**
Prep Date:	Analysis Date: **11/6/2019**	SeqNo: **2199902** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	2.8	14.24	0	94.2	69.1	142			
Surr: BFB	620		569.8		109	77.4	118			

Sample ID: **1911107-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **SL-7 (0-0.5')**	Batch ID: **G64279**	RunNo: **64279**
Prep Date:	Analysis Date: **11/6/2019**	SeqNo: **2199903** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	13	2.8	14.24	0	91.4	69.1	142	2.97	20	
Surr: BFB	620		569.8		108	77.4	118	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G64438**	RunNo: **64438**
Prep Date:	Analysis Date: **11/12/2019**	SeqNo: **2205878** 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	22		20.00		110	65.8	143			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G64438**	RunNo: **64438**
Prep Date:	Analysis Date: **11/12/2019**	SeqNo: **2205879** 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	94.3	73.6	119			
Surr: BFB	25		20.00		126	65.8	143			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **S64307**	RunNo: **64307**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201437** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **S64307**	RunNo: **64307**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201437** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.56		0.5000		112	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.6	70	130			
Surr: Toluene-d8	0.50		0.5000		99.7	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.5000		89.5	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **S64307**	RunNo: **64307**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201438** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	86.8	68	135			
Toluene	0.89	0.050	1.000	0	88.8	70	130			
Chlorobenzene	0.89	0.050	1.000	0	89.3	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **S64307**	RunNo: **64307**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201438** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.78	0.050	1.000	0	78.2	51.1	139			
Trichloroethene (TCE)	0.81	0.050	1.000	0	81.2	70	130			
Surr: Dibromofluoromethane	0.45		0.5000		89.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.6	70	130			
Surr: Toluene-d8	0.49		0.5000		98.7	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.5000		88.9	70	130			

Sample ID: **1911107-001ams**	SampType: **MS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SL-7 (0-0.5')**	Batch ID: **S64307**	RunNo: **64307**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201440** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.55	0.014	0.5698	0	96.3	57.1	141			
Toluene	0.50	0.028	0.5698	0	87.6	70	130			
Chlorobenzene	0.51	0.028	0.5698	0	90.3	70	130			
1,1-Dichloroethene	0.50	0.028	0.5698	0	87.6	38.5	141			
Trichloroethene (TCE)	0.50	0.028	0.5698	0	88.3	70	130			
Surr: Dibromofluoromethane	0.27		0.2849		93.1	70	130			
Surr: 1,2-Dichloroethane-d4	0.28		0.2849		98.1	70	130			
Surr: Toluene-d8	0.27		0.2849		95.3	70	130			
Surr: 4-Bromofluorobenzene	0.24		0.2849		86.0	70	130			

Sample ID: **1911107-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **SL-7 (0-0.5')**	Batch ID: **S64307**	RunNo: **64307**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201441** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.52	0.014	0.5698	0	91.4	57.1	141	5.17	20	
Toluene	0.52	0.028	0.5698	0	90.9	70	130	3.71	20	
Chlorobenzene	0.50	0.028	0.5698	0	88.4	70	130	2.07	20	
1,1-Dichloroethene	0.49	0.028	0.5698	0	85.7	38.5	141	2.16	20	
Trichloroethene (TCE)	0.48	0.028	0.5698	0	84.1	70	130	4.77	20	
Surr: Dibromofluoromethane	0.27		0.2849		93.3	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	0.28		0.2849		99.0	70	130	0	0	
Surr: Toluene-d8	0.28		0.2849		98.3	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.25		0.2849		87.0	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **S64339**	RunNo: **64339**
Prep Date:	Analysis Date: **11/8/2019**	SeqNo: **2202941** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.91	0.025	1.000	0	90.9	68	135			
Toluene	0.89	0.050	1.000	0	89.5	70	130			
Chlorobenzene	0.90	0.050	1.000	0	90.2	70	130			
1,1-Dichloroethene	0.78	0.050	1.000	0	78.4	51.1	139			
Trichloroethene (TCE)	0.83	0.050	1.000	0	82.7	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		93.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		96.8	70	130			
Surr: Toluene-d8	0.47		0.5000		94.3	70	130			
Surr: 4-Bromofluorobenzene	0.41		0.5000		82.4	70	130			

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **S64339**	RunNo: **64339**
Prep Date:	Analysis Date: **11/9/2019**	SeqNo: **2203020** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **S64339**	RunNo: **64339**
Prep Date:	Analysis Date: **11/9/2019**	SeqNo: **2203020** Units: **mg/Kg**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **S64339**	RunNo: **64339**
Prep Date:	Analysis Date: **11/9/2019**	SeqNo: **2203020** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.54		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		98.0	70	130			
Surr: Toluene-d8	0.53		0.5000		106	70	130			
Surr: 4-Bromofluorobenzene	0.42		0.5000		83.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs2** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **W64312** RunNo: **64312**
Prep Date: Analysis Date: **11/7/2019** SeqNo: **2201837** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	19	1.0	20.00	0	93.0	70	130			
Chlorobenzene	20	1.0	20.00	0	97.9	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	82.8	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	88.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.0	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		88.8	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.3		10.00		93.4	70	130			

Sample ID: **rb2** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **W64312** RunNo: **64312**
Prep Date: Analysis Date: **11/7/2019** SeqNo: **2201865** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W64312**	RunNo: **64312**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201865** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W64312**	RunNo: **64312**
Prep Date:	Analysis Date: **11/7/2019**	SeqNo: **2201865** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.2	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		90.8	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.7		10.00		96.9	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48625**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202834** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	0.17	0.40								J
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3´-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48625**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202834** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	1.7		3.330		51.7	26.7	85.9			
Surr: Phenol-d5	1.8		3.330		55.0	18.5	101			
Surr: 2,4,6-Tribromophenol	1.8		3.330		55.0	35.8	85.6			
Surr: Nitrobenzene-d5	1.1		1.670		65.0	40.8	95.2			
Surr: 2-Fluorobiphenyl	0.96		1.670		57.3	34.7	85.2			
Surr: 4-Terphenyl-d14	0.72		1.670		42.9	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48625**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **48625**	RunNo: **64365**
Prep Date: **11/6/2019**	Analysis Date: **11/10/2019**	SeqNo: **2202835** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.1	0.20	1.670	0	66.7	46	89.5			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	67.7	44.1	101			
2-Chlorophenol	1.9	0.20	3.330	0	57.9	47	91			
1,4-Dichlorobenzene	0.88	0.20	1.670	0	52.9	41.4	85.8			
2,4-Dinitrotoluene	1.0	0.50	1.670	0	60.5	37.4	82			
N-Nitrosodi-n-propylamine	1.1	0.20	1.670	0	65.0	47.8	92.9			
4-Nitrophenol	2.4	0.25	3.330	0	71.0	45	94.3			
Pentachlorophenol	2.0	0.40	3.330	0	61.2	31.7	76.9			
Phenol	2.0	0.20	3.330	0	60.2	49.4	92.5			
Pyrene	1.2	0.20	1.670	0	70.0	52.9	82.7			
1,2,4-Trichlorobenzene	1.1	0.20	1.670	0	64.0	43.6	98.1			
Surr: 2-Fluorophenol	1.7		3.330		50.5	26.7	85.9			
Surr: Phenol-d5	2.0		3.330		59.4	18.5	101			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.2	35.8	85.6			
Surr: Nitrobenzene-d5	1.2		1.670		69.1	40.8	95.2			
Surr: 2-Fluorobiphenyl	1.2		1.670		69.8	34.7	85.2			
Surr: 4-Terphenyl-d14	0.98		1.670		58.9	37.4	91.3			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48694**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48694**	RunNo: **64521**
Prep Date: **11/11/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209168** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3´-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **mb-48694**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBW**	Batch ID: **48694**	RunNo: **64521**
Prep Date: **11/11/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209168** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	100		200.0		51.1	15	101			
Surr: Phenol-d5	88		200.0		43.8	15	84.6			
Surr: 2,4,6-Tribromophenol	140		200.0		71.8	27.8	112			
Surr: Nitrobenzene-d5	79		100.0		79.3	33	113			
Surr: 2-Fluorobiphenyl	77		100.0		77.0	26.6	107			
Surr: 4-Terphenyl-d14	48		100.0		48.4	18.7	148			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcs-48694**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSW**	Batch ID: **48694**	RunNo: **64521**
Prep Date: **11/11/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209172** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	73	10	100.0	0	73.1	32.2	94			
4-Chloro-3-methylphenol	140	10	200.0	0	68.0	37.7	101			
2-Chlorophenol	130	10	200.0	0	64.1	32.6	90.1			
1,4-Dichlorobenzene	52	10	100.0	0	52.3	30	87.2			
2,4-Dinitrotoluene	65	10	100.0	0	65.3	35.9	85.8			
N-Nitrosodi-n-propylamine	67	10	100.0	0	66.7	37.1	108			
4-Nitrophenol	90	10	200.0	0	44.8	22.4	86.6			
Pentachlorophenol	100	20	200.0	0	50.2	31.6	91			
Phenol	82	10	200.0	0	40.9	21.7	84.9			
Pyrene	67	10	100.0	0	67.1	46.3	103			
1,2,4-Trichlorobenzene	65	10	100.0	0	65.5	30.2	88.3			
Surr: 2-Fluorophenol	95		200.0		47.3	15	101			
Surr: Phenol-d5	81		200.0		40.6	15	84.6			
Surr: 2,4,6-Tribromophenol	120		200.0		59.6	27.8	112			
Surr: Nitrobenzene-d5	71		100.0		70.8	33	113			
Surr: 2-Fluorobiphenyl	73		100.0		73.1	26.6	107			
Surr: 4-Terphenyl-d14	44		100.0		43.9	18.7	148			

Sample ID: **lcsd-48694**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48694**	RunNo: **64521**
Prep Date: **11/11/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209193** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	77	10	100.0	0	76.7	32.2	94	4.78	32.9	
4-Chloro-3-methylphenol	150	10	200.0	0	73.8	37.7	101	8.19	29.9	
2-Chlorophenol	140	10	200.0	0	70.9	32.6	90.1	10.1	28.5	
1,4-Dichlorobenzene	59	10	100.0	0	59.4	15	87.2	12.6	44.9	
2,4-Dinitrotoluene	70	10	100.0	0	70.2	35.9	85.8	7.20	28.5	
N-Nitrosodi-n-propylamine	75	10	100.0	0	74.8	37.1	108	11.5	29.9	
4-Nitrophenol	94	10	200.0	0	46.8	15	86.6	4.19	68	
Pentachlorophenol	110	20	200.0	0	57.1	31.6	91	13.0	39.5	
Phenol	88	10	200.0	0	44.2	15	84.9	7.80	44.2	
Pyrene	73	10	100.0	0	73.3	46.3	103	8.72	23.8	
1,2,4-Trichlorobenzene	75	10	100.0	0	74.9	15.7	88.3	13.4	38	
Surr: 2-Fluorophenol	110		200.0		52.6	15	101	0	0	
Surr: Phenol-d5	90		200.0		44.9	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		67.1	27.8	112	0	0	
Surr: Nitrobenzene-d5	78		100.0		78.4	33	113	0	0	
Surr: 2-Fluorobiphenyl	74		100.0		73.7	26.6	107	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **lcsd-48694**	SampType: **LCSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS02**	Batch ID: **48694**	RunNo: **64521**
Prep Date: **11/11/2019**	Analysis Date: **11/14/2019**	SeqNo: **2209193** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	44		100.0		44.2	18.7	148	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48884**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **48884**	RunNo: **64614**
Prep Date: **11/19/2019**	Analysis Date: **11/19/2019**	SeqNo: **2213002** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0018	0.033								J

Sample ID: **LCS-48884**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **48884**	RunNo: **64614**
Prep Date: **11/19/2019**	Analysis Date: **11/19/2019**	SeqNo: **2213003** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	93.7	80	120			

Sample ID: **LLLCS-48884**	SampType: **LCSLL**	TestCode: **EPA Method 7471: Mercury**
Client ID: **BatchQC**	Batch ID: **48884**	RunNo: **64614**
Prep Date: **11/19/2019**	Analysis Date: **11/19/2019**	SeqNo: **2213004** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0079	0.033	0.006660	0	118	70	130			J

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48730**	SampType: **MBLK**	TestCode: **EPA Method 7470: Mercury**
Client ID: **PBW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206939** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-48730**	SampType: **LCS**	TestCode: **EPA Method 7470: Mercury**
Client ID: **LCSW**	Batch ID: **48730**	RunNo: **64459**
Prep Date: **11/12/2019**	Analysis Date: **11/13/2019**	SeqNo: **2206940** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0044	0.00020	0.005000	0	87.9	80	120			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48651** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **48651** RunNo: **64473**
Prep Date: **11/7/2019** Analysis Date: **11/13/2019** SeqNo: **2207228** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	0.045	0.10								J
Chromium	0.086	0.30								J
Cobalt	ND	0.30								
Iron	3.5	2.5								
Lead	ND	0.25								
Manganese	0.049	0.10								J
Nickel	ND	0.50								
Selenium	ND	2.5								
Silver	0.044	0.25								J
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID: **LCS-48651** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **48651** RunNo: **64473**
Prep Date: **11/7/2019** Analysis Date: **11/13/2019** SeqNo: **2207230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	24	2.5	25.00	0	94.5	80	120			
Barium	24	0.10	25.00	0	94.7	80	120			
Beryllium	24	0.15	25.00	0	96.1	80	120			
Cadmium	24	0.10	25.00	0	96.1	80	120			
Chromium	24	0.30	25.00	0	94.0	80	120			
Cobalt	24	0.30	25.00	0	95.2	80	120			
Iron	26	2.5	25.00	0	104	80	120			B
Lead	24	0.25	25.00	0	97.6	80	120			
Manganese	26	0.10	25.00	0	103	80	120			
Nickel	24	0.50	25.00	0	94.3	80	120			
Selenium	20	2.5	25.00	0	81.8	80	120			
Silver	4.8	0.25	5.000	0	95.5	80	120			
Vanadium	24	2.5	25.00	0	96.6	80	120			
Zinc	23	2.5	25.00	0	93.6	80	120			

Sample ID: **MB-48651** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **48651** RunNo: **64552**
Prep Date: **11/7/2019** Analysis Date: **11/15/2019** SeqNo: **2210343** Units: **mg/Kg**

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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48651** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **48651** RunNo: **64552**
Prep Date: **11/7/2019** Analysis Date: **11/15/2019** SeqNo: **2210343** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								

Sample ID: **LCS-48651** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **48651** RunNo: **64552**
Prep Date: **11/7/2019** Analysis Date: **11/15/2019** SeqNo: **2210345** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	99.5	80	120			

Sample ID: **MB-48651** SampType: **MBLK** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS** Batch ID: **48651** RunNo: **64594**
Prep Date: **11/7/2019** Analysis Date: **11/18/2019** SeqNo: **2212237** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								

Sample ID: **LCS-48651** SampType: **LCS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS** Batch ID: **48651** RunNo: **64594**
Prep Date: **11/7/2019** Analysis Date: **11/18/2019** SeqNo: **2212239** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	100	80	120			

Sample ID: **1911107-002AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-7 (2-2.5')** Batch ID: **48651** RunNo: **64742**
Prep Date: **11/7/2019** Analysis Date: **11/22/2019** SeqNo: **2218499** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	24	0.30	24.74	0.8570	91.7	75	125			
Manganese	180	0.20	24.74	137.2	165	75	125			S
Silver	3.3	0.49	4.949	0	66.0	75	125			S
Vanadium	41	4.9	24.74	13.68	110	75	125			

Sample ID: **1911107-002AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-7 (2-2.5')** Batch ID: **48651** RunNo: **64742**
Prep Date: **11/7/2019** Analysis Date: **11/22/2019** SeqNo: **2218500** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	24	0.30	24.92	0.8570	91.9	75	125	0.917	20	
Manganese	180	0.20	24.92	137.2	187	75	125	3.27	20	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **1911107-002AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-7 (2-2.5')** Batch ID: **48651** RunNo: **64742**

Prep Date: **11/7/2019** Analysis Date: **11/22/2019** SeqNo: **2218500** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	3.3	0.50	4.984	0	67.0	75	125	2.23	20	S
Vanadium	42	5.0	24.92	13.68	114	75	125	3.03	20	

Sample ID: **1911107-002APS** SampType: **PS** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-7 (2-2.5')** Batch ID: **48651** RunNo: **64742**

Prep Date: Analysis Date: **11/22/2019** SeqNo: **2218501** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	180	0.20	50.14	137.2	83.3	80	120			

Sample ID: **1911107-002AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-7 (2-2.5')** Batch ID: **48651** RunNo: **64742**

Prep Date: **11/7/2019** Analysis Date: **11/22/2019** SeqNo: **2218523** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	350	0.20	24.74	303.9	201	75	125			S
Cadmium	21	0.20	24.74	0	85.4	75	125			
Chromium	31	0.59	24.74	6.443	98.7	75	125			
Cobalt	25	0.59	24.74	3.703	85.7	75	125			
Lead	22	0.49	24.74	3.914	74.0	75	125			S
Nickel	29	0.99	24.74	6.876	90.7	75	125			
Selenium	18	4.9	24.74	0	73.6	75	125			S

Sample ID: **1911107-002AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **SL-7 (2-2.5')** Batch ID: **48651** RunNo: **64742**

Prep Date: **11/7/2019** Analysis Date: **11/22/2019** SeqNo: **2218524** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	160	0.20	24.92	303.9	-564	75	125	73.6	20	RS
Cadmium	22	0.20	24.92	0	87.4	75	125	3.02	20	
Chromium	33	0.60	24.92	6.443	105	75	125	5.25	20	
Cobalt	26	0.60	24.92	3.703	89.4	75	125	4.20	20	
Lead	24	0.50	24.92	3.914	82.5	75	125	9.59	20	
Nickel	31	1.0	24.92	6.876	94.8	75	125	3.99	20	
Selenium	18	5.0	24.92	0	70.3	75	125	3.80	20	S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **1911107-002APS**	SampType: **PS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-7 (2-2.5')**	Batch ID: **48651**	RunNo: **64742**
Prep Date:	Analysis Date: **11/22/2019**	SeqNo: **2218525** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	340	0.20	50.14	303.9	81.0	80	120			
Lead	48	0.50	50.14	3.914	87.8	80	120			
Selenium	40	5.0	50.14	0	79.2	80	120			S
Silver	8.1	0.50	10.03	0	80.5	80	120			

Sample ID: **1911107-002AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-7 (2-2.5')**	Batch ID: **48651**	RunNo: **64789**
Prep Date: **11/7/2019**	Analysis Date: **11/25/2019**	SeqNo: **2220445** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	4.9	24.74	0	0	75	125			S
Arsenic	23	4.9	24.74	0	91.5	75	125			
Zinc	35	4.9	24.74	10.94	98.3	75	125			

Sample ID: **1911107-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **SL-7 (2-2.5')**	Batch ID: **48651**	RunNo: **64789**
Prep Date: **11/7/2019**	Analysis Date: **11/25/2019**	SeqNo: **2220446** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	5.0	24.92	0	0	75	125	0	20	S
Arsenic	21	5.0	24.92	0	83.8	75	125	8.17	20	
Zinc	34	5.0	24.92	10.94	93.0	75	125	3.30	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**

10-Dec-19

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48678**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48678**	RunNo: **64774**
Prep Date: **11/8/2019**	Analysis Date: **11/25/2019**	SeqNo: **2219760** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Beryllium	ND	0.0030								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.021	0.020								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Selenium	ND	0.050								
Silver	0.00077	0.0050								J
Vanadium	ND	0.050								
Zinc	ND	0.020								

Sample ID: **LCS-48678**	SampType: **LCS**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW**	Batch ID: **48678**	RunNo: **64774**
Prep Date: **11/8/2019**	Analysis Date: **11/25/2019**	SeqNo: **2219762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.020	0.5000	0	94.1	80	120			
Beryllium	0.50	0.0030	0.5000	0	100	80	120			
Cadmium	0.48	0.0020	0.5000	0	95.5	80	120			
Chromium	0.47	0.0060	0.5000	0	94.1	80	120			
Cobalt	0.47	0.0060	0.5000	0	94.8	80	120			
Iron	0.50	0.020	0.5000	0	100	80	120			B
Lead	0.49	0.0050	0.5000	0	98.8	80	120			
Manganese	0.47	0.0020	0.5000	0	94.5	80	120			
Nickel	0.47	0.010	0.5000	0	94.7	80	120			
Selenium	0.46	0.050	0.5000	0	92.7	80	120			
Silver	0.096	0.0050	0.1000	0	95.6	80	120			
Vanadium	0.49	0.050	0.5000	0	97.8	80	120			
Zinc	0.47	0.020	0.5000	0	94.0	80	120			

Sample ID: **MB-48678**	SampType: **MBLK**	TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **PBW**	Batch ID: **48678**	RunNo: **64774**
Prep Date: **11/8/2019**	Analysis Date: **11/25/2019**	SeqNo: **2219848** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911107**
10-Dec-19

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48678** SampType: **LCS** TestCode: **EPA 6010B: Total Recoverable Metals**
Client ID: **LCSW** Batch ID: **48678** RunNo: **64774**
Prep Date: **11/8/2019** Analysis Date: **11/25/2019** SeqNo: **2219850** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	98.2	80	120			

Qualifiers:

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

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: **MARATHON GALLUP** Work Order Number: **1911107** RcptNo: **1**

Received By: **Erin Melendrez** **11/4/2019 4:35:00 PM**

Completed By: **Leah Baca** **11/5/2019 9:14:43 AM**

Reviewed By: YG 11/5/19

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 ☐
   Samples were collected the same day and chilled.
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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

of preserved bottles checked for pH: 2 (1) (<2 or >12 unless noted)
Adjusted? yes no DM 11/5/19
Checked by: DM 11/5/19

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	7.9	Good	Yes			
2	11.0	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.8+0.1 (CF) = 7.9°C
10.9+0.1 (CF) = 11.0°C

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
11/4/19	1005	Soil	SL-7 (0-0.5')	8 oz jar - 2	Neat	1911107-001			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1025		SL-7 (2-2.5')	8 oz jar-2	NEAT	-002			X							X	X	X	X			
				4 oz jar-1	NEAT															X		
				Vial-2	MeOH											X						
	1040		SL-7 (2.5-4')	8 oz jar-2	NEAT	-003			X							X	X	X	X			
				4 oz jar-1	NEAT															X		
				Vial-2	MeOH											X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/4/19	1400		Courier	11/4/19	1635
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.8+0.1(CF)=7.9°C
10.9+0.1(CF)=11.0°C

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B [redacted]	8270 - [redacted]	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
11/4/19	1050	Soil	SL-7 (10-12')	8 oz jar - 1	Neat	1911107-004			X							X	X	X	X			
				~~4 oz jar - 1~~	~~Neat~~															~~X~~		
				Vial - 2	MeOH											X						
	1235		SL-8 (0-0.5')	8 oz JAR-2	NEAT	-005			X							X	X	X	X			
				4 oz JAR-1	NEAT															X		
				VIAL-2	MEOH											X						
	1245		SL-8 (2-2.5')	8 oz JAR-2	NEAT	-006			X							X	X	X	X			
				4 oz JAR-1	NEAT															X		
				VIAL-2	MEOH											X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
11/4/19	1400		courier	11/4/19	1635
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.8+0.1(CF)=7.9°C
10.9+0.1(CF)=11.0°C

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. 1911107	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B - [redacted]	8270 - [redacted]	Metals	Anions	Cr VI & Cyanide		Air Bubbles (Y or N)
11/4/19	1255	Soil	SL-8 (2.5-4')	8 oz jar - 2	Neat	-007			X							X	X	X	X			
				4 oz jar - 1	Neat															X		
				Vial - 2	MeOH											X						
	1305		SL-8 (12-14')	8ozJAR-2	NEAT	-008			X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MEOH											X						
	—		DUP03	8ozJAR-2	NEAT	-009			X							X	X	X	X			
				4ozJAR-1	NEAT															X		
				VIAL-2	MEOH											X						
11/4/19	—	MEOH	MEOH BLANK	VIAL-1	MEOH	-010										X						

Date	Time	Relinquished by:	Received by:	Date	Time
11/4/19	1400		Courier	11/4/19	1635

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.8+0.1(CF)=7.9°C
10.9+0.1(CF)=11.0°C

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total	Chromium VI	Anions	Cyanide			Air Bubbles (Y or N)
11/4/19	1345	Water	EB110419	40ml voa - 5	HCl	1911107 -011			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			

Date	Time	Relinquished by:	Received by:	Date	Time
11/4/19	1400		courier	11/4/19	1635
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Sanitary Sewer Lagoon - Soil and Equipment Blank Analytical Requirements

- SW-846 Method 8260 for [redacted] volatile organic compounds;
- SW-846 Method 8270 for [redacted] semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics.

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020
Chloride	EPA Method 300.0
Fluoride	EPA Method 300.0
Nitrate	EPA Method 300.0
Nitrite	EPA Method 300.0
Sulfate	EPA Method 300.0
Total coliform	SM9223B
E. coli	SM9223B

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

January 17, 2020

Brian Moore

Marathon
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX:

RE: Sanitary Sewer Lagoon OrderNo.: 1911589

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 9 sample(s) on 11/13/2019 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

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

Case Narrative

WO#: **1911589**
Date: **1/17/2020**

CLIENT: Marathon
Project: Sanitary Sewer Lagoon

Analytical Notes Regarding BOD:
Due to a lab error BOD is not able to be reported.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 7:55:00 AM
Lab ID: 1911589-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 2:51:49 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 2:51:49 PM	48838
Surr: DNOP	101	0	81.5-152		%Rec	1	11/18/2019 2:51:49 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	9.0	0.21	0.50		mg/L	10	11/18/2019 1:59:55 PM	G64557
Surr: BFB	111	0	65.8-143		%Rec	10	11/18/2019 1:59:55 PM	G64557
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	0.39	0.14	0.50	J	mg/L	5	11/14/2019 10:48:54 A	R64531
Chloride	430	25	25	*	mg/L	50	11/15/2019 7:01:43 PM	R64554
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/14/2019 10:48:54 A	R64531
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/14/2019 10:48:54 A	R64531
Sulfate	220	0.33	2.5		mg/L	5	11/14/2019 10:48:54 A	R64531
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.076	0.00065	0.0020		mg/L	1	12/11/2019 8:40:53 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 8:40:53 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 8:40:53 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 8:40:53 AM	A65095
Cobalt	0.0034	0.0031	0.0060	J	mg/L	1	12/11/2019 8:40:53 AM	A65095
Iron	0.033	0.0087	0.020		mg/L	1	12/11/2019 8:40:53 AM	A65095
Manganese	4.7	0.0014	0.010	*	mg/L	5	12/11/2019 8:42:59 AM	A65095
Nickel	0.021	0.0040	0.010		mg/L	1	12/11/2019 8:40:53 AM	A65095
Silver	0.0039	0.00094	0.0050	J	mg/L	1	12/11/2019 8:40:53 AM	A65095
Vanadium	0.0086	0.0020	0.050	J	mg/L	1	12/11/2019 8:40:53 AM	A65095
Zinc	0.011	0.0023	0.010		mg/L	1	12/11/2019 8:40:53 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.12	0.00049	0.0020		mg/L	1	11/27/2019 6:14:19 PM	48803
Beryllium	0.00031	0.00022	0.0020	J	mg/L	1	11/27/2019 6:14:19 PM	48803
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:14:19 PM	48803
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:14:19 PM	48803
Cobalt	0.0049	0.0012	0.0060	J	mg/L	1	11/27/2019 6:14:19 PM	48803
Iron	1.1	0.030	0.10	*	mg/L	5	11/27/2019 6:16:09 PM	48803
Manganese	5.4	0.00060	0.020	*	mg/L	10	12/2/2019 9:33:04 AM	48803
Nickel	0.030	0.0015	0.010		mg/L	1	11/27/2019 6:14:19 PM	48803
Silver	0.0044	0.0014	0.0050	J	mg/L	1	11/27/2019 6:14:19 PM	48803
Vanadium	0.011	0.00054	0.050	J	mg/L	1	11/27/2019 6:14:19 PM	48803
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 6:14:19 PM	48803
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 7:55:00 AM
Lab ID: 1911589-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.0019	0.0050		mg/L	5	11/14/2019 1:56:34 PM	B64505
Arsenic	0.0096	0.00010	0.0010		mg/L	1	11/14/2019 1:35:33 PM	B64505
Lead	0.00037	0.00027	0.0025	J	mg/L	5	11/14/2019 1:56:34 PM	B64505
Selenium	0.00020	0.00017	0.0010	J	mg/L	1	11/14/2019 1:35:33 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/18/2019 2:30:17 PM	48803
Arsenic	0.010	0.00031	0.0010	*	mg/L	1	11/18/2019 2:30:17 PM	48803
Lead	0.0014	0.000026	0.00050		mg/L	1	11/18/2019 2:30:17 PM	48803
Selenium	0.00052	0.00048	0.0010	J	mg/L	1	11/18/2019 2:30:17 PM	48803
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/27/2019 4:45:48 PM	49059
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	1700	17	100	P	µg/L	100	11/15/2019 3:46:00 PM	R64537
Toluene	5.6	0.35	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Ethylbenzene	2.3	0.13	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Methyl tert-butyl ether (MTBE)	200	46	100	P	µg/L	100	11/15/2019 3:46:00 PM	R64537
1,2,4-Trimethylbenzene	4.6	0.21	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,3,5-Trimethylbenzene	0.83	0.19	1.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Naphthalene	7.7	0.28	2.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1-Methylnaphthalene	2.3	0.31	4.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
2-Methylnaphthalene	0.36	0.35	4.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
Acetone	ND	1.2	10		µg/L	1	11/14/2019 8:38:00 PM	R64499
Bromobenzene	ND	0.24	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Bromoform	ND	0.29	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Bromomethane	ND	0.27	3.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
2-Butanone	ND	2.1	10		µg/L	1	11/14/2019 8:38:00 PM	R64499
Carbon disulfide	ND	0.45	10		µg/L	1	11/14/2019 8:38:00 PM	R64499
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Chloroethane	0.70	0.18	2.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
Chloroform	ND	0.12	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Chloromethane	ND	0.32	3.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
cis-1,2-DCE	32	0.19	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 7:55:00 AM
Lab ID: 1911589-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Dibromomethane	ND	0.21	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,1-Dichloroethane	120	14	100	P	µg/L	100	11/15/2019 3:46:00 PM	R64537
1,1-Dichloroethene	65	0.21	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
2-Hexanone	ND	1.5	10		µg/L	1	11/14/2019 8:38:00 PM	R64499
Isopropylbenzene	6.9	0.19	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
4-Isopropyltoluene	0.69	0.22	1.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
4-Methyl-2-pentanone	2.3	0.71	10	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
n-Butylbenzene	0.38	0.23	3.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
n-Propylbenzene	0.71	0.21	1.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
sec-Butylbenzene	1.4	0.25	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Styrene	ND	0.19	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Tetrachloroethene (PCE)	0.98	0.15	1.0	J	µg/L	1	11/14/2019 8:38:00 PM	R64499
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,1,1-Trichloroethane	5.6	0.17	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Trichloroethene (TCE)	8.7	0.17	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Vinyl chloride	6.4	0.18	1.0		µg/L	1	11/14/2019 8:38:00 PM	R64499
Xylenes, Total	8.1	0.45	1.5		µg/L	1	11/14/2019 8:38:00 PM	R64499
Surr: 1,2-Dichloroethane-d4	108	0	70-130		%Rec	1	11/14/2019 8:38:00 PM	R64499
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	11/14/2019 8:38:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-5-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 7:55:00 AM
Lab ID: 1911589-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	103	0	70-130		%Rec	1	11/14/2019 8:38:00 PM	R64499
Surr: Toluene-d8	97.2	0	70-130		%Rec	1	11/14/2019 8:38:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 8:55:00 AM
Lab ID: 1911589-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 4:05:14 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 4:05:14 PM	48838
Surr: DNOP	95.9	0	81.5-152		%Rec	1	11/18/2019 4:05:14 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/15/2019 9:26:10 PM	G64557
Surr: BFB	88.4	0	65.8-143		%Rec	1	11/15/2019 9:26:10 PM	G64557
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	0.56	0.14	0.50		mg/L	5	11/14/2019 11:13:44 A	R64531
Chloride	140	10	10		mg/L	20	11/14/2019 11:26:09 A	R64531
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/14/2019 11:13:44 A	R64531
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/14/2019 11:13:44 A	R64531
Sulfate	440	1.3	10	*	mg/L	20	11/14/2019 11:26:09 A	R64531
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.034	0.00065	0.0020		mg/L	1	12/11/2019 8:45:14 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 8:45:14 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 8:45:14 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 8:45:14 AM	A65095
Cobalt	ND	0.0031	0.0060		mg/L	1	12/11/2019 8:45:14 AM	A65095
Iron	ND	0.0087	0.020		mg/L	1	12/11/2019 8:45:14 AM	A65095
Manganese	1.2	0.0014	0.010	*	mg/L	5	12/11/2019 8:53:37 AM	A65095
Nickel	0.0068	0.0040	0.010	J	mg/L	1	12/11/2019 8:45:14 AM	A65095
Silver	0.0018	0.00094	0.0050	J	mg/L	1	12/11/2019 8:45:14 AM	A65095
Vanadium	0.0067	0.0020	0.050	J	mg/L	1	12/11/2019 8:45:14 AM	A65095
Zinc	0.022	0.0023	0.010		mg/L	1	12/11/2019 8:45:14 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.054	0.00049	0.0020		mg/L	1	11/27/2019 6:24:45 PM	48803
Beryllium	ND	0.00022	0.0020		mg/L	1	11/27/2019 6:24:45 PM	48803
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:24:45 PM	48803
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:24:45 PM	48803
Cobalt	0.0018	0.0012	0.0060	J	mg/L	1	11/27/2019 6:24:45 PM	48803
Iron	0.96	0.0061	0.020	*	mg/L	1	11/27/2019 6:24:45 PM	48803
Manganese	1.3	0.00030	0.010	*	mg/L	5	11/27/2019 6:26:35 PM	48803
Nickel	0.021	0.0015	0.010		mg/L	1	11/27/2019 6:24:45 PM	48803
Silver	0.0025	0.0014	0.0050	J	mg/L	1	11/27/2019 6:24:45 PM	48803
Vanadium	0.0083	0.00054	0.050	J	mg/L	1	11/27/2019 6:24:45 PM	48803
Zinc	0.0063	0.0058	0.010	J	mg/L	1	11/27/2019 6:24:45 PM	48803
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 8:55:00 AM
Lab ID: 1911589-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 1:38:10 PM	B64505
Arsenic	0.0017	0.00010	0.0010		mg/L	1	11/14/2019 1:38:10 PM	B64505
Lead	0.00035	0.000055	0.00050	J	mg/L	1	11/14/2019 1:38:10 PM	B64505
Selenium	0.00028	0.00017	0.0010	J	mg/L	1	11/14/2019 1:38:10 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/18/2019 2:32:25 PM	48803
Arsenic	0.0021	0.00031	0.0010		mg/L	1	11/18/2019 2:32:25 PM	48803
Lead	0.00095	0.000026	0.00050		mg/L	1	11/18/2019 2:32:25 PM	48803
Selenium	0.00073	0.00048	0.0010	J	mg/L	1	11/18/2019 2:32:25 PM	48803
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/27/2019 4:48:06 PM	49059
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Methyl tert-butyl ether (MTBE)	15	0.46	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Acetone	ND	1.2	10		µg/L	1	11/15/2019 6:33:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 6:33:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 6:33:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 8:55:00 AM
Lab ID: 1911589-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 6:33:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 6:33:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
sec-Butylbenzene	0.53	0.25	1.0	J	µg/L	1	11/15/2019 6:33:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 6:33:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 6:33:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	11/15/2019 6:33:00 PM	R64537
Surr: 4-Bromofluorobenzene	99.7	0	70-130		%Rec	1	11/15/2019 6:33:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-6-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 8:55:00 AM
Lab ID: 1911589-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	98.0	0	70-130		%Rec	1	11/15/2019 6:33:00 PM	R64537
Surr: Toluene-d8	97.2	0	70-130		%Rec	1	11/15/2019 6:33:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 9:20:00 AM
Lab ID: 1911589-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 4:29:42 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 4:29:42 PM	48838
Surr: DNOP	106	0	81.5-152		%Rec	1	11/18/2019 4:29:42 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	11	0.21	0.50		mg/L	10	11/18/2019 2:22:42 PM	G64557
Surr: BFB	109	0	65.8-143		%Rec	10	11/18/2019 2:22:42 PM	G64557
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	0.33	0.14	0.50	J	mg/L	5	11/14/2019 11:38:33 A	R64531
Chloride	470	25	25	*	mg/L	50	11/15/2019 7:14:08 PM	R64554
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/14/2019 11:38:33 A	R64531
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/14/2019 11:38:33 A	R64531
Sulfate	59	0.33	2.5		mg/L	5	11/14/2019 11:38:33 A	R64531
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.099	0.00065	0.0020		mg/L	1	12/11/2019 8:55:41 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 8:55:41 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 8:55:41 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 8:55:41 AM	A65095
Cobalt	ND	0.0031	0.0060		mg/L	1	12/11/2019 8:55:41 AM	A65095
Iron	0.26	0.0087	0.020		mg/L	1	12/11/2019 8:55:41 AM	A65095
Manganese	2.0	0.0014	0.010	*	mg/L	5	12/11/2019 8:57:44 AM	A65095
Nickel	0.024	0.0040	0.010		mg/L	1	12/11/2019 8:55:41 AM	A65095
Silver	0.0026	0.00094	0.0050	J	mg/L	1	12/11/2019 8:55:41 AM	A65095
Vanadium	0.0034	0.0020	0.050	J	mg/L	1	12/11/2019 8:55:41 AM	A65095
Zinc	0.016	0.0023	0.010		mg/L	1	12/11/2019 8:55:41 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.11	0.00049	0.0020		mg/L	1	11/27/2019 6:28:34 PM	48803
Beryllium	ND	0.00022	0.0020		mg/L	1	11/27/2019 6:28:34 PM	48803
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:28:34 PM	48803
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:28:34 PM	48803
Cobalt	0.0014	0.0012	0.0060	J	mg/L	1	11/27/2019 6:28:34 PM	48803
Iron	0.99	0.0061	0.020	*	mg/L	1	11/27/2019 6:28:34 PM	48803
Manganese	2.2	0.00030	0.010	*	mg/L	5	11/27/2019 6:30:22 PM	48803
Nickel	0.029	0.0015	0.010		mg/L	1	11/27/2019 6:28:34 PM	48803
Silver	0.0027	0.0014	0.0050	J	mg/L	1	11/27/2019 6:28:34 PM	48803
Vanadium	0.0046	0.00054	0.050	J	mg/L	1	11/27/2019 6:28:34 PM	48803
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 6:28:34 PM	48803
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 9:20:00 AM
Lab ID: 1911589-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 1:40:48 PM	B64505
Arsenic	0.0077	0.00010	0.0010		mg/L	1	11/14/2019 1:40:48 PM	B64505
Lead	0.000057	0.000055	0.00050	J	mg/L	1	11/14/2019 1:40:48 PM	B64505
Selenium	0.00047	0.00017	0.0010	J	mg/L	1	11/14/2019 1:40:48 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	0.00017	0.00016	0.0010	J	mg/L	1	11/18/2019 2:34:33 PM	48803
Arsenic	0.0081	0.00031	0.0010		mg/L	1	11/18/2019 2:34:33 PM	48803
Lead	0.00036	0.000026	0.00050	J	mg/L	1	11/18/2019 2:34:33 PM	48803
Selenium	ND	0.00048	0.0010		mg/L	1	11/18/2019 2:34:33 PM	48803
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/27/2019 4:50:18 PM	49059
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	4000	17	100		µg/L	100	11/15/2019 4:10:00 PM	R64537
Toluene	18	0.35	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Ethylbenzene	16	0.13	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Methyl tert-butyl ether (MTBE)	190	0.46	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,2,4-Trimethylbenzene	4.8	0.21	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,3,5-Trimethylbenzene	2.5	0.19	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Naphthalene	6.7	0.28	2.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1-Methylnaphthalene	2.8	0.31	4.0	J	µg/L	1	11/14/2019 9:25:00 PM	R64499
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Acetone	14	1.2	10		µg/L	1	11/14/2019 9:25:00 PM	R64499
Bromobenzene	ND	0.24	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Bromoform	ND	0.29	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Bromomethane	ND	0.27	3.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
2-Butanone	ND	2.1	10		µg/L	1	11/14/2019 9:25:00 PM	R64499
Carbon disulfide	ND	0.45	10		µg/L	1	11/14/2019 9:25:00 PM	R64499
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Chloroethane	3.3	0.18	2.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Chloroform	ND	0.12	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Chloromethane	ND	0.32	3.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
cis-1,2-DCE	22	0.19	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 9:20:00 AM
Lab ID: 1911589-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Dibromomethane	ND	0.21	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,1-Dichloroethane	78	0.14	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,1-Dichloroethene	38	0.21	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
2-Hexanone	ND	1.5	10		µg/L	1	11/14/2019 9:25:00 PM	R64499
Isopropylbenzene	7.2	0.19	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
4-Isopropyltoluene	1.0	0.22	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
4-Methyl-2-pentanone	2.4	0.71	10	J	µg/L	1	11/14/2019 9:25:00 PM	R64499
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
n-Butylbenzene	0.97	0.23	3.0	J	µg/L	1	11/14/2019 9:25:00 PM	R64499
n-Propylbenzene	0.91	0.21	1.0	J	µg/L	1	11/14/2019 9:25:00 PM	R64499
sec-Butylbenzene	3.6	0.25	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Styrene	ND	0.19	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Tetrachloroethene (PCE)	0.75	0.15	1.0	J	µg/L	1	11/14/2019 9:25:00 PM	R64499
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,1,1-Trichloroethane	4.5	0.17	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
1,1,2-Trichloroethane	0.51	0.22	1.0	J	µg/L	1	11/14/2019 9:25:00 PM	R64499
Trichloroethene (TCE)	4.7	0.17	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Vinyl chloride	14	0.18	1.0		µg/L	1	11/14/2019 9:25:00 PM	R64499
Xylenes, Total	33	0.45	1.5		µg/L	1	11/14/2019 9:25:00 PM	R64499
Surr: 1,2-Dichloroethane-d4	109	0	70-130		%Rec	1	11/14/2019 9:25:00 PM	R64499
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	11/14/2019 9:25:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-7-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 9:20:00 AM
Lab ID: 1911589-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	99.8	0	70-130		%Rec	1	11/14/2019 9:25:00 PM	R64499
Surr: Toluene-d8	96.0	0	70-130		%Rec	1	11/14/2019 9:25:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:00:00 AM
Lab ID: 1911589-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 4:53:55 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 4:53:55 PM	48838
Surr: DNOP	97.6	0	81.5-152		%Rec	1	11/18/2019 4:53:55 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.95	0.021	0.050		mg/L	1	11/15/2019 10:36:34 P	G64557
Surr: BFB	109	0	65.8-143		%Rec	1	11/15/2019 10:36:34 P	G64557
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	0.19	0.14	0.50	J	mg/L	5	11/14/2019 12:28:11 P	R64531
Chloride	220	10	10		mg/L	20	11/14/2019 12:40:36 P	R64531
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/14/2019 12:28:11 P	R64531
Nitrogen, Nitrate (As N)	0.59	0.030	0.50		mg/L	5	11/14/2019 12:28:11 P	R64531
Sulfate	410	1.3	10	*	mg/L	20	11/14/2019 12:40:36 P	R64531
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.060	0.00065	0.0020		mg/L	1	12/11/2019 8:59:59 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 8:59:59 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 8:59:59 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 8:59:59 AM	A65095
Cobalt	0.012	0.0031	0.0060		mg/L	1	12/11/2019 8:59:59 AM	A65095
Iron	ND	0.0087	0.020		mg/L	1	12/11/2019 8:59:59 AM	A65095
Manganese	0.49	0.00029	0.0020	*	mg/L	1	12/11/2019 8:59:59 AM	A65095
Nickel	0.011	0.0040	0.010		mg/L	1	12/11/2019 8:59:59 AM	A65095
Silver	0.0015	0.00094	0.0050	J	mg/L	1	12/11/2019 8:59:59 AM	A65095
Vanadium	0.0070	0.0020	0.050	J	mg/L	1	12/11/2019 8:59:59 AM	A65095
Zinc	0.024	0.0023	0.010		mg/L	1	12/11/2019 8:59:59 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.078	0.00049	0.0020		mg/L	1	11/27/2019 6:32:32 PM	48803
Beryllium	ND	0.00022	0.0020		mg/L	1	11/27/2019 6:32:32 PM	48803
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:32:32 PM	48803
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:32:32 PM	48803
Cobalt	0.0087	0.0012	0.0060		mg/L	1	11/27/2019 6:32:32 PM	48803
Iron	0.70	0.0061	0.020	*	mg/L	1	11/27/2019 6:32:32 PM	48803
Manganese	1.0	0.00030	0.010	*	mg/L	5	11/27/2019 6:34:21 PM	48803
Nickel	0.017	0.0015	0.010		mg/L	1	11/27/2019 6:32:32 PM	48803
Silver	0.0017	0.0014	0.0050	J	mg/L	1	11/27/2019 6:32:32 PM	48803
Vanadium	0.0090	0.00054	0.050	J	mg/L	1	11/27/2019 6:32:32 PM	48803
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 6:32:32 PM	48803
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:00:00 AM
Lab ID: 1911589-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 1:43:25 PM	B64505
Arsenic	0.0028	0.00010	0.0010		mg/L	1	11/14/2019 1:43:25 PM	B64505
Lead	0.00021	0.000055	0.00050	J	mg/L	1	11/14/2019 1:43:25 PM	B64505
Selenium	0.00043	0.00017	0.0010	J	mg/L	1	11/14/2019 1:43:25 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/18/2019 2:36:41 PM	48803
Arsenic	0.0040	0.00031	0.0010		mg/L	1	11/18/2019 2:36:41 PM	48803
Lead	0.00057	0.000026	0.00050		mg/L	1	11/18/2019 2:36:41 PM	48803
Selenium	ND	0.00048	0.0010		mg/L	1	11/18/2019 2:36:41 PM	48803
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/27/2019 4:52:29 PM	49059
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	290	1.7	10		µg/L	10	11/15/2019 4:34:00 PM	R64537
Toluene	0.92	0.35	1.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
Ethylbenzene	1.3	0.13	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Methyl tert-butyl ether (MTBE)	67	0.46	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Naphthalene	0.74	0.28	2.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
1-Methylnaphthalene	0.58	0.31	4.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Acetone	7.3	1.2	10	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
Bromobenzene	ND	0.24	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Bromoform	ND	0.29	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Bromomethane	ND	0.27	3.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
2-Butanone	ND	2.1	10		µg/L	1	11/14/2019 9:49:00 PM	R64499
Carbon disulfide	ND	0.45	10		µg/L	1	11/14/2019 9:49:00 PM	R64499
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Chloroethane	ND	0.18	2.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Chloroform	ND	0.12	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Chloromethane	ND	0.32	3.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
cis-1,2-DCE	5.6	0.19	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:00:00 AM
Lab ID: 1911589-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Dibromomethane	ND	0.21	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,4-Dichlorobenzene	0.35	0.29	1.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,1-Dichloroethane	27	0.14	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,1-Dichloroethene	11	0.21	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
2-Hexanone	ND	1.5	10		µg/L	1	11/14/2019 9:49:00 PM	R64499
Isopropylbenzene	1.7	0.19	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/14/2019 9:49:00 PM	R64499
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
n-Butylbenzene	0.37	0.23	3.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
n-Propylbenzene	0.96	0.21	1.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
sec-Butylbenzene	0.38	0.25	1.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
Styrene	ND	0.19	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,1,1-Trichloroethane	1.7	0.17	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Trichloroethene (TCE)	2.3	0.17	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/14/2019 9:49:00 PM	R64499
Vinyl chloride	0.59	0.18	1.0	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
Xylenes, Total	0.97	0.45	1.5	J	µg/L	1	11/14/2019 9:49:00 PM	R64499
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	11/14/2019 9:49:00 PM	R64499
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	11/14/2019 9:49:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: SL-8-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:00:00 AM
Lab ID: 1911589-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	102	0	70-130		%Rec	1	11/14/2019 9:49:00 PM	R64499
Surr: Toluene-d8	98.0	0	70-130		%Rec	1	11/14/2019 9:49:00 PM	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB02
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:35:00 AM
Lab ID: 1911589-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 5:18:21 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 5:18:21 PM	48838
Surr: DNOP	94.6	0	81.5-152		%Rec	1	11/18/2019 5:18:21 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/15/2019 11:00:01 P	G64557
Surr: BFB	91.5	0	65.8-143		%Rec	1	11/15/2019 11:00:01 P	G64557
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	ND	0.029	0.10		mg/L	1	11/14/2019 12:53:00 P	R64531
Chloride	ND	0.50	0.50		mg/L	1	11/14/2019 12:53:00 P	R64531
Nitrogen, Nitrite (As N)	ND	0.0054	0.10		mg/L	1	11/14/2019 12:53:00 P	R64531
Nitrogen, Nitrate (As N)	ND	0.0061	0.10		mg/L	1	11/14/2019 12:53:00 P	R64531
Sulfate	ND	0.067	0.50		mg/L	1	11/14/2019 12:53:00 P	R64531
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	ND	0.00065	0.0020		mg/L	1	12/11/2019 9:02:03 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 9:02:03 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 9:02:03 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 9:02:03 AM	A65095
Cobalt	ND	0.0031	0.0060		mg/L	1	12/11/2019 9:02:03 AM	A65095
Iron	ND	0.0087	0.020		mg/L	1	12/11/2019 9:02:03 AM	A65095
Manganese	ND	0.00029	0.0020		mg/L	1	12/11/2019 9:02:03 AM	A65095
Nickel	ND	0.0040	0.010		mg/L	1	12/11/2019 9:02:03 AM	A65095
Silver	ND	0.00094	0.0050		mg/L	1	12/11/2019 9:02:03 AM	A65095
Vanadium	ND	0.0020	0.050		mg/L	1	12/11/2019 9:02:03 AM	A65095
Zinc	0.018	0.0023	0.010		mg/L	1	12/11/2019 9:02:03 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	ND	0.00049	0.0020		mg/L	1	11/27/2019 6:36:19 PM	48803
Beryllium	ND	0.00022	0.0020		mg/L	1	11/27/2019 6:36:19 PM	48803
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:36:19 PM	48803
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:36:19 PM	48803
Cobalt	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:36:19 PM	48803
Iron	0.0067	0.0061	0.020	J	mg/L	1	11/27/2019 6:36:19 PM	48803
Manganese	0.00021	0.000060	0.0020	J	mg/L	1	11/27/2019 6:36:19 PM	48803
Nickel	ND	0.0015	0.010		mg/L	1	11/27/2019 6:36:19 PM	48803
Silver	ND	0.0014	0.0050		mg/L	1	11/27/2019 6:36:19 PM	48803
Vanadium	ND	0.00054	0.050		mg/L	1	11/27/2019 6:36:19 PM	48803
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 6:36:19 PM	48803
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB02
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:35:00 AM
Lab ID: 1911589-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 1:46:03 PM	B64505
Arsenic	ND	0.00010	0.0010		mg/L	1	11/14/2019 1:46:03 PM	B64505
Lead	ND	0.000055	0.00050		mg/L	1	11/14/2019 1:46:03 PM	B64505
Selenium	ND	0.00017	0.0010		mg/L	1	11/14/2019 1:46:03 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/18/2019 2:38:48 PM	48803
Arsenic	ND	0.00031	0.0010		mg/L	1	11/18/2019 2:38:48 PM	48803
Lead	ND	0.000026	0.00050		mg/L	1	11/18/2019 2:38:48 PM	48803
Selenium	ND	0.00048	0.0010		mg/L	1	11/18/2019 2:38:48 PM	48803
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/27/2019 4:54:42 PM	49059
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Acetone	9.2	1.2	10	J	µg/L	1	11/15/2019 6:57:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 6:57:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 6:57:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB02
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:35:00 AM
Lab ID: 1911589-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 6:57:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 6:57:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 6:57:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 6:57:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	1	11/15/2019 6:57:00 PM	R64537
Surr: 4-Bromofluorobenzene	99.8	0	70-130		%Rec	1	11/15/2019 6:57:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: EB02
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019 10:35:00 AM
Lab ID: 1911589-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	98.9	0	70-130		%Rec	1	11/15/2019 6:57:00 PM	R64537
Surr: Toluene-d8	99.3	0	70-130		%Rec	1	11/15/2019 6:57:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019
Lab ID: 1911589-006
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 5:42:28 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 5:42:28 PM	48838
Surr: DNOP	90.7	0	81.5-152		%Rec	1	11/18/2019 5:42:28 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	9.5	0.21	0.50		mg/L	10	11/18/2019 2:45:25 PM	G64557
Surr: BFB	112	0	65.8-143		%Rec	10	11/18/2019 2:45:25 PM	G64557
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	0.39	0.14	0.50	J	mg/L	5	11/14/2019 1:17:48 PM	R64531
Chloride	420	25	25	*	mg/L	50	11/15/2019 7:51:22 PM	R64554
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/14/2019 1:17:48 PM	R64531
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/14/2019 1:17:48 PM	R64531
Sulfate	220	0.33	2.5		mg/L	5	11/14/2019 1:17:48 PM	R64531
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.076	0.00065	0.0020		mg/L	1	12/11/2019 9:08:18 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 9:08:18 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 9:08:18 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 9:08:18 AM	A65095
Cobalt	0.0041	0.0031	0.0060	J	mg/L	1	12/11/2019 9:08:18 AM	A65095
Iron	0.029	0.0087	0.020		mg/L	1	12/11/2019 9:08:18 AM	A65095
Manganese	4.8	0.0029	0.020	*	mg/L	10	12/11/2019 9:10:23 AM	A65095
Nickel	0.024	0.0040	0.010		mg/L	1	12/11/2019 9:08:18 AM	A65095
Silver	0.0042	0.00094	0.0050	J	mg/L	1	12/11/2019 9:08:18 AM	A65095
Vanadium	0.0082	0.0020	0.050	J	mg/L	1	12/11/2019 9:08:18 AM	A65095
Zinc	0.015	0.0023	0.010		mg/L	1	12/11/2019 9:08:18 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.095	0.00049	0.0020		mg/L	1	11/27/2019 6:38:26 PM	48803
Beryllium	0.00023	0.00022	0.0020	J	mg/L	1	11/27/2019 6:38:26 PM	48803
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:38:26 PM	48803
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:38:26 PM	48803
Cobalt	0.0047	0.0012	0.0060	J	mg/L	1	11/27/2019 6:38:26 PM	48803
Iron	0.54	0.0061	0.020	*	mg/L	1	11/27/2019 6:38:26 PM	48803
Manganese	5.0	0.00030	0.010	*	mg/L	5	11/27/2019 6:40:27 PM	48803
Nickel	0.029	0.0015	0.010		mg/L	1	11/27/2019 6:38:26 PM	48803
Silver	0.0044	0.0014	0.0050	J	mg/L	1	11/27/2019 6:38:26 PM	48803
Vanadium	0.0098	0.00054	0.050	J	mg/L	1	11/27/2019 6:38:26 PM	48803
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 6:38:26 PM	48803
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019
Lab ID: 1911589-006
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 1:53:56 PM	B64505
Arsenic	0.0096	0.00010	0.0010		mg/L	1	11/14/2019 1:53:56 PM	B64505
Lead	0.00037	0.000055	0.00050	J	mg/L	1	11/14/2019 1:53:56 PM	B64505
Selenium	0.00037	0.00017	0.0010	J	mg/L	1	11/14/2019 1:53:56 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/18/2019 2:40:56 PM	48803
Arsenic	0.010	0.00031	0.0010	*	mg/L	1	11/18/2019 2:40:56 PM	48803
Lead	0.00092	0.000026	0.00050		mg/L	1	11/18/2019 2:40:56 PM	48803
Selenium	0.00053	0.00048	0.0010	J	mg/L	1	11/18/2019 2:40:56 PM	48803
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.000038	0.00020		mg/L	1	11/27/2019 4:56:54 PM	49059
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	2100	17	100		µg/L	100	11/15/2019 4:57:00 PM	R64537
Toluene	5.8	0.35	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Ethylbenzene	2.6	0.13	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Methyl tert-butyl ether (MTBE)	200	0.46	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,2,4-Trimethylbenzene	4.5	0.21	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,3,5-Trimethylbenzene	0.83	0.19	1.0	J	µg/L	1	11/14/2019 10:36:00 P	R64499
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Naphthalene	7.5	0.28	2.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1-Methylnaphthalene	2.1	0.31	4.0	J	µg/L	1	11/14/2019 10:36:00 P	R64499
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Acetone	ND	1.2	10		µg/L	1	11/14/2019 10:36:00 P	R64499
Bromobenzene	ND	0.24	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Bromoform	ND	0.29	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Bromomethane	ND	0.27	3.0		µg/L	1	11/14/2019 10:36:00 P	R64499
2-Butanone	ND	2.1	10		µg/L	1	11/14/2019 10:36:00 P	R64499
Carbon disulfide	ND	0.45	10		µg/L	1	11/14/2019 10:36:00 P	R64499
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Chloroethane	0.66	0.18	2.0	J	µg/L	1	11/14/2019 10:36:00 P	R64499
Chloroform	ND	0.12	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Chloromethane	ND	0.32	3.0		µg/L	1	11/14/2019 10:36:00 P	R64499
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
cis-1,2-DCE	31	0.19	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019
Lab ID: 1911589-006
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Dibromomethane	ND	0.21	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,1-Dichloroethane	120	14	100		µg/L	100	11/15/2019 4:57:00 PM	R64537
1,1-Dichloroethene	63	0.21	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
2-Hexanone	ND	1.5	10		µg/L	1	11/14/2019 10:36:00 P	R64499
Isopropylbenzene	7.5	0.19	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
4-Isopropyltoluene	0.66	0.22	1.0	J	µg/L	1	11/14/2019 10:36:00 P	R64499
4-Methyl-2-pentanone	2.3	0.71	10	J	µg/L	1	11/14/2019 10:36:00 P	R64499
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/14/2019 10:36:00 P	R64499
n-Butylbenzene	0.42	0.23	3.0	J	µg/L	1	11/14/2019 10:36:00 P	R64499
n-Propylbenzene	0.79	0.21	1.0	J	µg/L	1	11/14/2019 10:36:00 P	R64499
sec-Butylbenzene	1.4	0.25	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Styrene	ND	0.19	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Tetrachloroethene (PCE)	1.0	0.15	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,1,1-Trichloroethane	5.5	0.17	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
1,1,2-Trichloroethane	0.44	0.22	1.0	J	µg/L	1	11/14/2019 10:36:00 P	R64499
Trichloroethene (TCE)	8.1	0.17	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Vinyl chloride	6.3	0.18	1.0		µg/L	1	11/14/2019 10:36:00 P	R64499
Xylenes, Total	8.2	0.45	1.5		µg/L	1	11/14/2019 10:36:00 P	R64499
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	11/14/2019 10:36:00 P	R64499
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	11/14/2019 10:36:00 P	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: DUP01
Project: Sanitary Sewer Lagoon
Collection Date: 11/13/2019
Lab ID: 1911589-006
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	98.8	0	70-130		%Rec	1	11/14/2019 10:36:00 P	R64499
Surr: Toluene-d8	98.4	0	70-130		%Rec	1	11/14/2019 10:36:00 P	R64499

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank-1
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911589-007
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/16/2019 12:10:12 A	G64557
Surr: BFB	90.1	0	65.8-143		%Rec	1	11/16/2019 12:10:12 A	G64557
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Acetone	ND	1.2	10		µg/L	1	11/15/2019 5:45:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 5:45:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 5:45:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank-1
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911589-007
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 5:45:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 5:45:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 5:45:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 5:45:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	11/15/2019 5:45:00 PM	R64537
Surr: 4-Bromofluorobenzene	97.2	0	70-130		%Rec	1	11/15/2019 5:45:00 PM	R64537
Surr: Dibromofluoromethane	96.2	0	70-130		%Rec	1	11/15/2019 5:45:00 PM	R64537
Surr: Toluene-d8	96.8	0	70-130		%Rec	1	11/15/2019 5:45:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank-2
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911589-008
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/16/2019 12:33:36 A	G64557
Surr: BFB	97.8	0	65.8-143		%Rec	1	11/16/2019 12:33:36 A	G64557
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Toluene	ND	0.35	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Naphthalene	ND	0.28	2.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Acetone	ND	1.2	10		µg/L	1	11/19/2019 6:03:00 PM	W6459
Bromobenzene	ND	0.24	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Bromoform	ND	0.29	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Bromomethane	ND	0.27	3.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
2-Butanone	ND	2.1	10		µg/L	1	11/19/2019 6:03:00 PM	W6459
Carbon disulfide	ND	0.45	10		µg/L	1	11/19/2019 6:03:00 PM	W6459
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Chloroethane	ND	0.18	2.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Chloroform	ND	0.12	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Chloromethane	ND	0.32	3.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Dibromomethane	ND	0.21	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank-2
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911589-008
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
2-Hexanone	ND	1.5	10		µg/L	1	11/19/2019 6:03:00 PM	W6459
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/19/2019 6:03:00 PM	W6459
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Styrene	ND	0.19	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/19/2019 6:03:00 PM	W6459
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/19/2019 6:03:00 PM	W6459
Surr: 1,2-Dichloroethane-d4	108	0	70-130		%Rec	1	11/19/2019 6:03:00 PM	W6459
Surr: 4-Bromofluorobenzene	99.1	0	70-130		%Rec	1	11/19/2019 6:03:00 PM	W6459
Surr: Dibromofluoromethane	98.6	0	70-130		%Rec	1	11/19/2019 6:03:00 PM	W6459
Surr: Toluene-d8	96.5	0	70-130		%Rec	1	11/19/2019 6:03:00 PM	W6459

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank-3
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911589-009
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/16/2019 12:56:56 A	G64557
Surr: BFB	91.3	0	65.8-143		%Rec	1	11/16/2019 12:56:56 A	G64557
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Toluene	ND	0.35	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Naphthalene	ND	0.28	2.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Acetone	ND	1.2	10		µg/L	1	11/19/2019 6:27:00 PM	W6459
Bromobenzene	ND	0.24	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Bromoform	ND	0.29	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Bromomethane	ND	0.27	3.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
2-Butanone	ND	2.1	10		µg/L	1	11/19/2019 6:27:00 PM	W6459
Carbon disulfide	ND	0.45	10		µg/L	1	11/19/2019 6:27:00 PM	W6459
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Chloroethane	ND	0.18	2.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Chloroform	ND	0.12	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Chloromethane	ND	0.32	3.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Dibromomethane	ND	0.21	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon
Client Sample ID: Trip Blank-3
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911589-009
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
2-Hexanone	ND	1.5	10		µg/L	1	11/19/2019 6:27:00 PM	W6459
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/19/2019 6:27:00 PM	W6459
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Styrene	ND	0.19	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/19/2019 6:27:00 PM	W6459
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/19/2019 6:27:00 PM	W6459
Surr: 1,2-Dichloroethane-d4	103	0	70-130		%Rec	1	11/19/2019 6:27:00 PM	W6459
Surr: 4-Bromofluorobenzene	97.2	0	70-130		%Rec	1	11/19/2019 6:27:00 PM	W6459
Surr: Dibromofluoromethane	99.3	0	70-130		%Rec	1	11/19/2019 6:27:00 PM	W6459
Surr: Toluene-d8	97.1	0	70-130		%Rec	1	11/19/2019 6:27:00 PM	W6459

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

Qualifiers:

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

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Project Summary

The samples listed on the following page(s) were received for analysis at Anatek Labs, Inc. The analytical report is attached. All test results reported below comply with and meet current TNI standards, other applicable regulatory standards, and the Anatek Labs, Inc. Quality Assurance Manual, unless otherwise noted in the report.

The results in this report relate only to the samples analyzed. All soil and solid results are reported on a dry-weight basis unless otherwise noted. An estimation of uncertainty is available upon request.

This report shall not be reproduced, except in full, without the written consent of Anatek Labs, Inc.

For questions about this report, please contact Justin Doty at 208-883-2839.

Authorized Signature

Todd Taruscio, Lab Manager

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Project Summary

Sample Summary

Anatek Sample ID	Client Sample ID	Matrix	Collection Date/Time	Received Date/Time
191115025-001	1911589-001I/SL-5-GW	Water	11/13/2019 7:55 AM	11/15/2019 11:20 AM
191115025-002	1911589-001J/SL-5-GW	Water	11/13/2019 7:55 AM	11/15/2019 11:20 AM
191115025-003	1911589-002I/SL-6-GW	Water	11/13/2019 8:55 AM	11/15/2019 11:20 AM
191115025-004	1911589-002J/SL-6-GW	Water	11/13/2019 8:55 AM	11/15/2019 11:20 AM
191115025-005	1911589-003I/SL-7-GW	Water	11/13/2019 9:20 AM	11/15/2019 11:20 AM
191115025-006	1911589-003J/SL-7-GW	Water	11/13/2019 9:20 AM	11/15/2019 11:20 AM
191115025-007	1911589-004I/SL-8-GW	Water	11/13/2019 10:00 AM	11/15/2019 11:20 AM
191115025-008	1911589-004J/SL-8-GW	Water	11/13/2019 10:00 AM	11/15/2019 11:20 AM
191115025-009	1911589-005I/EB02	Water	11/13/2019 10:35 AM	11/15/2019 11:20 AM
191115025-010	1911589-005J/EB02	Water	11/13/2019 10:35 AM	11/15/2019 11:20 AM
191115025-011	1911589-006I/DUP01	Water	11/13/2019	11/15/2019 11:20 AM
191115025-012	1911589-006J/DUP01	Water	11/13/2019	11/15/2019 11:20 AM

QA/QC Summary

QC Parameter	Yes / No (if No, see Comments below)
1. Sample Holding Time Valid?	Yes
2. Instrument Tunes Valid?	Yes
3. Method Blank(s) Valid?	No
4. Internal Standard Response(s) Valid?	Yes
5. Initial Calibration Curve(s) Valid?	Yes
6. Continuing Calibration(s) Valid?	Yes
7. Surrogate Recoveries Valid?	No
8. QC Sample Recoveries Valid?	Yes

Comments:

S4 - Surrogate recovery was above laboratory and method acceptance limits. No target analytes were detected in the sample.
S16 - Surrogate recovery was below laboratory and method acceptance limits. Reextraction and/or reanalysis was not performed due to insufficient sample.
S17 - Surrogate recovery for one of the six surrogates was above laboratory and method acceptance limits. Potential matrix effect.
B1 - Target analyte detected in method blank at or above the method reporting limit.

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-002	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/2019 11:20 AM
Client Sample ID	1911589-001J/SL-5-GW	**Sampling Time**	7:55 AM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/21/2019 9:00:00 AM	BKP	EPA 335.4	

Sample Number	191115025-004	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/2019 11:20 AM
Client Sample ID	1911589-002J/SL-6-GW	**Sampling Time**	8:55 AM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/21/2019 9:00:00 AM	BKP	EPA 335.4	

Sample Number	191115025-006	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/2019 11:20 AM
Client Sample ID	1911589-003J/SL-7-GW	**Sampling Time**	9:20 AM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/25/2019 1:00:00 PM	BKP	EPA 335.4	

Sample Number	191115025-008	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/2019 11:20 AM
Client Sample ID	1911589-004J/SL-8-GW	**Sampling Time**	10:00 AM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/25/2019 1:00:00 PM	BKP	EPA 335.4	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-010	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/2019 11:20 AM
Client Sample ID	1911589-005J/EB02	**Sampling Time**	10:35 AM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/25/2019 1:00:00 PM	BKP	EPA 335.4	

Sample Number	191115025-012	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/2019 11:20 AM
Client Sample ID	1911589-006J/DUP01	**Sampling Time**			
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/25/2019 1:00:00 PM	BKP	EPA 335.4	

Authorized Signature

Todd Taruscio, Lab Manager

MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.488	mg/L	0.5	97.6	90-110	11/25/2019	11/25/2019
Cyanide	0.528	mg/L	0.5	105.6	90-110	11/20/2019	11/21/2019

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
191120054-001	Cyanide	ND	0.505	mg/L	0.5	101.0	80-120	11/25/2019	11/25/2019
191112049-007	Cyanide	ND	0.517	mg/L	0.5	103.4	80-120	11/20/2019	11/21/2019

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	0.507	mg/L	0.5	101.4	0.4	0-20	11/25/2019	11/25/2019
Cyanide	0.520	mg/L	0.5	104.0	0.6	0-20	11/20/2019	11/21/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	11/25/2019	11/25/2019
Cyanide	ND	mg/L	0.01	11/20/2019	11/21/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-001	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-001I/SL-5-GW	**Sampling Time**	7:55 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 1:53:00 PM	TGT	EPA 8270D	
1,4-Dioxane	58.2	ug/L	1	12/10/2019 8:33:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 8:33:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	50.4	39-111
Terphenyl-d14	EPA 8270D	97.2	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-003	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-002I/SL-6-GW	**Sampling Time**	8:55 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 2:16:00 PM	TGT	EPA 8270D	
1,4-Dioxane	2.45	ug/L	1	12/10/2019 8:56:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 8:56:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-003

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	50.0	39-111
Terphenyl-d14	EPA 8270D	93.2	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-005	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-003I/SL-7-GW	**Sampling Time**	9:20 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 2:39:00 PM	TGT	EPA 8270D	
1,4-Dioxane	41.3	ug/L	1	12/10/2019 9:19:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 9:19:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-005

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	68.8	39-111
Terphenyl-d14	EPA 8270D	112.4	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-007	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-004I/SL-8-GW	**Sampling Time**	10:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 4:36:00 PM	TGT	EPA 8270D	
1,4-Dioxane	10.1	ug/L	1	12/10/2019 9:42:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 9:42:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-007

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	59.2	39-111
Terphenyl-d14	EPA 8270D	98.4	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-009	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-005I/EB02	**Sampling Time**	10:35 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 3:26:00 PM	TGT	EPA 8270D	S4
1,4-Dioxane	ND	ug/L	1	12/10/2019 10:05:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 10:05:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-009

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	82.4	39-111
Terphenyl-d14	EPA 8270D	142.0	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-011	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-006I/DUP01	**Sampling Time**		**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

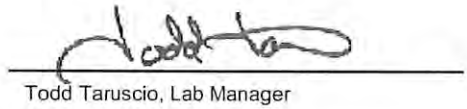
Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 3:49:00 PM	TGT	EPA 8270D	
1,4-Dioxane	28.1	ug/L	1	12/10/2019 10:27:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 10:27:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-011

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	55.2	39-111
Terphenyl-d14	EPA 8270D	92.4	22-133

Authorized Signature



Todd Taruscio, Lab Manager

MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit
S4	Surrogate recovery was above laboratory and method acceptance limits. No target analytes were detected in the sample

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Dibenz[a,h]anthracene	6.35	ug/L	5	127.0	52-140	11/19/2019	12/10/2019
1,4-Dioxane	6.08	ug/L	10	60.8	45-135	11/19/2019	12/10/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Dibenz[a,h]anthracene	5.78	ug/L	5	115.6	9.4	0-20	11/19/2019	12/10/2019
1,4-Dioxane	6.37	ug/L	10	63.7	4.7	0-25	11/19/2019	12/10/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,4-Dioxane	ND	ug/L	0.5	11/19/2019	12/10/2019
Benzoic acid	ND	ug/L	0.5	11/19/2019	12/10/2019
Dibenz[a,h]anthracene	ND	ug/L	0.01	11/19/2019	12/10/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-001	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-001I/SL-5-GW	**Sampling Time**	7:55 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
1,4-Dichlorobenzene	1.14	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2-Methylphenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Acenaphthene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-001	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-001I/SL-5-GW	**Sampling Time**	7:55 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Acenaphthylene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Aniline	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Anthracene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16,B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Carbazole	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Chrysene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Dibenzofuran	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Diethylphthalate	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Fluoranthene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Fluorene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Hexachloroethane	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Isophorone	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number 191115025-001
Client Sample ID 1911589-001I/SL-5-GW
Matrix Water
Comments

Sampling Date 11/13/2019
Sampling Time 7:55 AM

Date/Time Received 11/15/20111:20 AM
Extraction Date 11/19/2019

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Naphthalene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Nitrobenzene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Phenanthrene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Phenol	0.98	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Pyrene	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16
Pyridine	ND	ug/L	0.5	12/13/2019 3:31:00 PM	TGT	EPA 8270D	S16

Surrogate Data

Sample Number 191115025-001

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	32.6	43-120
2-Fluorobiphenyl	EPA 8270D	99.6	55-127
2-Fluorophenol	EPA 8270D	29.0	41-119
Nitrobenzene-d5	EPA 8270D	78.8	55-120
Phenol-d5	EPA 8270D	28.6	52-115
Terphenyl-d14	EPA 8270D	71.6	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-003	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-002I/SL-6-GW	**Sampling Time**	8:55 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-003	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-002I/SL-6-GW	**Sampling Time**	8:55 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Naphthalene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-003	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-002I/SL-6-GW	**Sampling Time**	8:55 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Phenol	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 3:59:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-003

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	98.8	43-120
2-Fluorobiphenyl	EPA 8270D	96.0	55-127
2-Fluorophenol	EPA 8270D	80.4	41-119
Nitrobenzene-d5	EPA 8270D	73.6	55-120
Phenol-d5	EPA 8270D	80.2	52-115
Terphenyl-d14	EPA 8270D	74.0	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-005	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-003I/SL-7-GW	**Sampling Time**	9:20 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2-Methylphenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Acenaphthene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Acenaphthylene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-005	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-003I/SL-7-GW	**Sampling Time**	9:20 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Anthracene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
bis(2-Ethylhexyl)phthalate	0.64	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17,B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Carbazole	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Chrysene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Dibenzofuran	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Diethylphthalate	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Fluoranthene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Fluorene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Hexachloroethane	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Isophorone	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Naphthalene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-005	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-003I/SL-7-GW	**Sampling Time**	9:20 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Phenanthrene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Phenol	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Pyrene	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17
Pyridine	ND	ug/L	0.5	12/13/2019 4:27:00 PM	TGT	EPA 8270D	S17

Surrogate Data

Sample Number 191115025-005

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	121.4	43-120
2-Fluorobiphenyl	EPA 8270D	126.0	55-127
2-Fluorophenol	EPA 8270D	98.4	41-119
Nitrobenzene-d5	EPA 8270D	94.0	55-120
Phenol-d5	EPA 8270D	100.4	52-115
Terphenyl-d14	EPA 8270D	83.2	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-007	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-004I/SL-8-GW	**Sampling Time**	10:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-007	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-004I/SL-8-GW	**Sampling Time**	10:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Naphthalene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-007	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-004I/SL-8-GW	**Sampling Time**	10:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Phenol	0.82	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 4:55:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-007

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	90.0	43-120
2-Fluorobiphenyl	EPA 8270D	103.2	55-127
2-Fluorophenol	EPA 8270D	72.2	41-119
Nitrobenzene-d5	EPA 8270D	81.6	55-120
Phenol-d5	EPA 8270D	71.2	52-115
Terphenyl-d14	EPA 8270D	67.6	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-009	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20191:20 AM
Client Sample ID	1911589-005I/EB02	**Sampling Time**	10:35 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2-Methylphenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Acenaphthene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Acenaphthylene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-009	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-005I/EB02	**Sampling Time**	10:35 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Anthracene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
bis(2-Ethylhexyl)phthalate	0.42	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17,B1,J
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Carbazole	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Chrysene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Dibenzofuran	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Diethylphthalate	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Fluoranthene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Fluorene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Hexachloroethane	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Isophorone	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Naphthalene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-009	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-005I/EB02	**Sampling Time**	10:35 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Phenanthrene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Phenol	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Pyrene	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17
Pyridine	ND	ug/L	0.5	12/13/2019 5:23:00 PM	TGT	EPA 8270D	S17

Surrogate Data

Sample Number 191115025-009

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	115.2	43-120
2-Fluorobiphenyl	EPA 8270D	136.4	55-127
2-Fluorophenol	EPA 8270D	88.0	41-119
Nitrobenzene-d5	EPA 8270D	105.6	55-120
Phenol-d5	EPA 8270D	85.4	52-115
Terphenyl-d14	EPA 8270D	91.6	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number	191115025-011	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-006I/DUP01	**Sampling Time**		**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
1-Methylnaphthalene	0.70	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	0.74	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Sample Number 191115025-011
Client Sample ID 1911589-006I/DUP01
Matrix Water
Comments

Sampling Date 11/13/2019
Sampling Time

Date/Time Received 11/15/20111:20 AM
Extraction Date 11/19/2019

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Naphthalene	1.46	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115025-011	**Sampling Date**	11/13/2019	**Date/Time Received**	11/15/20111:20 AM
Client Sample ID	1911589-006I/DUP01	**Sampling Time**		**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Phenol	0.70	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 5:50:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115025-011

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	106.6	43-120
2-Fluorobiphenyl	EPA 8270D	98.0	55-127
2-Fluorophenol	EPA 8270D	82.2	41-119
Nitrobenzene-d5	EPA 8270D	74.4	55-120
Phenol-d5	EPA 8270D	86.0	52-115
Terphenyl-d14	EPA 8270D	68.8	22-135

Authorized Signature

Todd Taruscio, Lab Manager

B1	Target analyte detected in method blank at or above the method reporting limit
J	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit
S16	Surrogate recovery was below laboratory and method acceptance limits. Reextraction and/or reanalysis was not performed due to insufficient sample.
S17	Surrogate recovery for one of the six surrogates was above laboratory and method acceptance limits. Potential matrix effect.

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.19	ug/L	5	83.8	45-139	11/19/2019	12/13/2019
Phenol	3.75	ug/L	5	75.0	45-134	11/19/2019	12/13/2019
Pentachlorophenol	3.58	ug/L	5	71.6	22-138	11/19/2019	12/13/2019
Naphthalene	3.78	ug/L	5	75.6	53-120	11/19/2019	12/13/2019
bis(2-Ethylhexyl)phthalate	4.36	ug/L	5	87.2	51-149	11/19/2019	12/13/2019
Benzo[a]pyrene	4.87	ug/L	5	97.4	63-120	11/19/2019	12/13/2019
Acenaphthene	4.17	ug/L	5	83.4	45-129	11/19/2019	12/13/2019
4-Nitrophenol	3.38	ug/L	5	67.6	19-141	11/19/2019	12/13/2019
4-Chloro-3-methylphenol	3.88	ug/L	5	77.6	42-139	11/19/2019	12/13/2019
2-Methylnaphthalene	3.62	ug/L	5	72.4	56-128	11/19/2019	12/13/2019
2-Chlorophenol	3.68	ug/L	5	73.6	50-131	11/19/2019	12/13/2019
2,4-Dinitrotoluene	4.43	ug/L	5	88.6	42-143	11/19/2019	12/13/2019
1-Methylnaphthalene	3.66	ug/L	5	73.2	57-124	11/19/2019	12/13/2019
1,4-Dichlorobenzene	2.92	ug/L	5	58.4	28-108	11/19/2019	12/13/2019
1,2,4-Trichlorobenzene	3.16	ug/L	5	63.2	33-109	11/19/2019	12/13/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.27	ug/L	5	85.4	1.9	0-20	11/19/2019	12/13/2019
Phenol	3.98	ug/L	5	79.6	6.0	0-25	11/19/2019	12/13/2019
Pentachlorophenol	3.86	ug/L	5	77.2	7.5	0-39	11/19/2019	12/13/2019
Naphthalene	3.89	ug/L	5	77.8	2.9	0-20	11/19/2019	12/13/2019
bis(2-Ethylhexyl)phthalate	4.54	ug/L	5	90.8	4.0	0-43	11/19/2019	12/13/2019
Benzo[a]pyrene	4.82	ug/L	5	96.4	1.0	0-20	11/19/2019	12/13/2019
Acenaphthene	4.20	ug/L	5	84.0	0.7	0-22	11/19/2019	12/13/2019
4-Nitrophenol	4.13	ug/L	5	82.6	20.0	0-51	11/19/2019	12/13/2019
4-Chloro-3-methylphenol	4.06	ug/L	5	81.2	4.5	0-20	11/19/2019	12/13/2019
2-Methylnaphthalene	3.73	ug/L	5	74.6	3.0	0-24	11/19/2019	12/13/2019
2-Chlorophenol	3.92	ug/L	5	78.4	6.3	0-24	11/19/2019	12/13/2019
2,4-Dinitrotoluene	4.86	ug/L	5	97.2	9.3	0-20	11/19/2019	12/13/2019
1-Methylnaphthalene	3.75	ug/L	5	75.0	2.4	0-20	11/19/2019	12/13/2019
1,4-Dichlorobenzene	3.15	ug/L	5	63.0	7.6	0-31	11/19/2019	12/13/2019
1,2,4-Trichlorobenzene	3.36	ug/L	5	67.2	6.1	0-33	11/19/2019	12/13/2019

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115025
Project Name: 1911589

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2,4-Trichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1,2-Dichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1,3-Dichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1,4-Dichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1-Methylnaphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4,5-Trichlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4,6-Trichlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dichlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dimethylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dinitrophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dinitrotoluene	ND	ug/L	0.5	11/19/2019	12/13/2019
2,6-Dinitrotoluene	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Chloronaphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Chlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Methylnaphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Nitroaniline	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Nitrophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
3,3'-Dichlorobenzidine	ND	ug/L	0.5	11/19/2019	12/13/2019
3+4-Methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
3-Nitroaniline	ND	ug/L	0.5	11/19/2019	12/13/2019
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Bromophenyl-phenylether	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Chloro-3-methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Chlorophenyl-phenylether	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Nitroaniline	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Nitrophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
Acenaphthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Acenaphthylene	ND	ug/L	0.5	11/19/2019	12/13/2019
Aniline	ND	ug/L	0.5	11/19/2019	12/13/2019
Anthracene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo(ghi)perylene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[a]anthracene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[a]pyrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[b]fluoranthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[k]fluoranthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzyl alcohol	ND	ug/L	0.5	11/19/2019	12/13/2019

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115025
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911589
Attn:	ANDY FREEMAN		

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	11/19/2019	12/13/2019
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	11/19/2019	12/13/2019
bis(2-Ethylhexyl)phthalate	0.50	ug/L	0.5	11/19/2019	12/13/2019
Butylbenzylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Carbazole	ND	ug/L	0.5	11/19/2019	12/13/2019
Chrysene	ND	ug/L	0.5	11/19/2019	12/13/2019
Dibenz[a,h]anthracene	ND	ug/L	0.5	11/19/2019	12/13/2019
Dibenzofuran	ND	ug/L	0.5	11/19/2019	12/13/2019
Diethylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Dimethylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Di-n-butylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Di-n-octylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Fluoranthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Fluorene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachlorobutadiene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachlorocyclopentadiene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachloroethane	ND	ug/L	0.5	11/19/2019	12/13/2019
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Isophorone	ND	ug/L	0.5	11/19/2019	12/13/2019
Naphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
Nitrobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
n-Nitrosodiphenylamine	ND	ug/L	0.5	11/19/2019	12/13/2019
Pentachlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
Phenanthrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Phenol	ND	ug/L	0.5	11/19/2019	12/13/2019
Pyrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Pyridine	ND	ug/L	0.5	11/19/2019	12/13/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 22, 2019

1911589

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1161213

Samples Received: 11/15/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

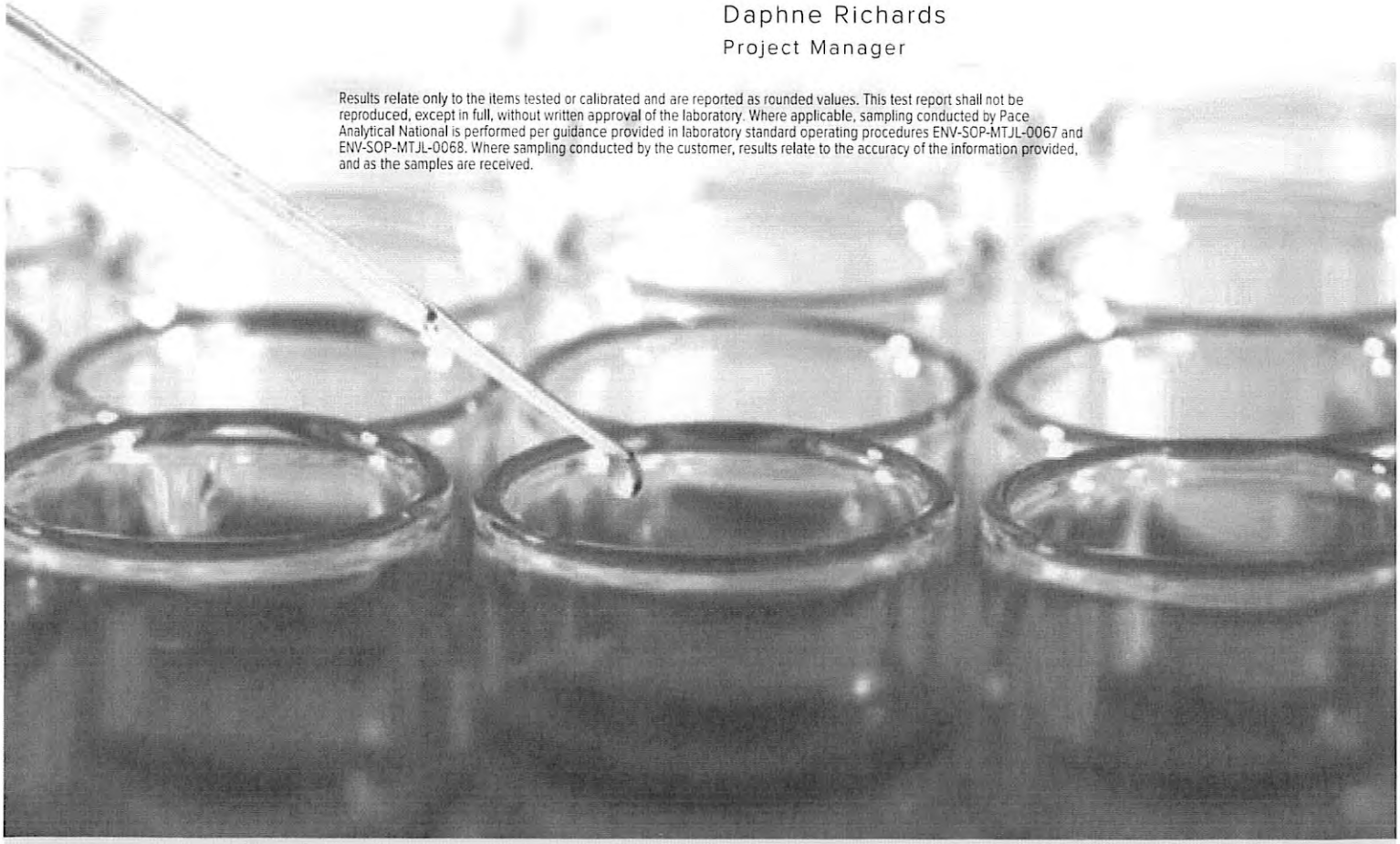


TABLE OF CONTENTS

Cp: Cover Page	1
Tc: Table of Contents	2
Ss: Sample Summary	3
Cn: Case Narrative	5
Sr: Sample Results	6
1911589-001G SL-5-GW L1161213-01	6
1911589-001H SL-5-GW L1161213-02	7
1911589-002G SL-6-GW L1161213-03	8
1911589-002H SL-6-GW L1161213-04	9
1911589-003G SL-7-GW L1161213-05	10
1911589-003H SL-7-GW L1161213-06	11
1911589-004G SL-8-GW L1161213-07	12
1911589-004H SL-8-GW L1161213-08	13
1911589-005H EBO2 L1161213-09	14
1911589-005H EB02 L1161213-10	15
1911589-006G DUP01 L1161213-11	16
1911589-006H DUP01 L1161213-12	17
Qc: Quality Control Summary	18
Wet Chemistry by Method 410.4	18
Wet Chemistry by Method 7199	19
Gl: Glossary of Terms	20
Al: Accreditations & Locations	21
Sc: Sample Chain of Custody	22

1911589-001G SL-5-GW L1161213-01 GW			Collected by	Collected date/time 11/13/19 07:55	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383265	1	11/20/19 12:00	11/20/19 16:05	BAM	Mt. Juliet, TN

1911589-001H SL-5-GW L1161213-02 GW			Collected by	Collected date/time 11/13/19 07:55	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 05:34	11/19/19 05:34	GB	Mt. Juliet, TN

1911589-002G SL-6-GW L1161213-03 GW			Collected by	Collected date/time 11/13/19 08:55	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383265	1	11/20/19 12:00	11/20/19 16:05	BAM	Mt. Juliet, TN

1911589-002H SL-6-GW L1161213-04 GW			Collected by	Collected date/time 11/13/19 08:55	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 05:57	11/19/19 05:57	GB	Mt. Juliet, TN

1911589-003G SL-7-GW L1161213-05 GW			Collected by	Collected date/time 11/13/19 09:20	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383265	1	11/20/19 12:00	11/20/19 16:05	BAM	Mt. Juliet, TN

1911589-003H SL-7-GW L1161213-06 GW			Collected by	Collected date/time 11/13/19 09:20	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 06:04	11/19/19 06:04	GB	Mt. Juliet, TN

1911589-004G SL-8-GW L1161213-07 GW			Collected by	Collected date/time 11/13/19 10:00	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383265	1	11/20/19 12:00	11/20/19 16:06	BAM	Mt. Juliet, TN

1911589-004H SL-8-GW L1161213-08 GW			Collected by	Collected date/time 11/13/19 10:00	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 06:11	11/19/19 06:11	GB	Mt. Juliet, TN

1911589-005H EBO2 L1161213-09 GW			Collected by	Collected date/time 11/13/19 10:35	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383265	1	11/20/19 12:00	11/20/19 16:06	BAM	Mt. Juliet, TN

1911589-005H EB02 L1161213-10 GW			Collected by	Collected date/time 11/13/19 10:35	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 06:19	11/19/19 06:19	GB	Mt. Juliet, TN

1911589-006G DUP01 L1161213-11 GW			Collected by	Collected date/time 11/13/19 00:00	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383265	1	11/20/19 12:00	11/20/19 16:06	BAM	Mt. Juliet, TN

1911589-006H DUP01 L1161213-12 GW			Collected by	Collected date/time 11/13/19 00:00	Received date/time 11/15/19 08:30	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 06:33	11/19/19 06:33	GB	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	65.0		3.00	10.0	1	11/20/2019 16:05	WG1383265

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 05:34	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	49.6		3.00	10.0	1	11/20/2019 16:05	WG1383265

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 05:57	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	75.5		3.00	10.0	1	11/20/2019 16:05	WG1383265

Wet Chemistry by Method 7199

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 06:04	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	40.5		3.00	10.0	1	11/20/2019 16:06	WG1383265

Wet Chemistry by Method 7199

Analyte	Result mg/l	Qualifier	MDL mg/l	RDL mg/l	Dilution	Analysis date / time	Batch
Hexavalent Chromium	0.000157	J	0.000150	0.000500	1	11/19/2019 06:11	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	U		3.00	10.0	1	11/20/2019 16:06	WG1383265

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 06:19	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	66.6		3.00	10.0	1	11/20/2019 16:06	WG1383265

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 06:33	WG1382787

Method Blank (MB)

(MB) R3474226-1 11/20/19 16:02

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U		3.00	10.0

L1159085-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1159085-01 11/20/19 16:03 • (DUP) R3474226-3 11/20/19 16:03

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	168	167	1	0.579		20

L1161556-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1161556-01 11/20/19 16:07 • (DUP) R3474226-6 11/20/19 16:08

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	ND	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3474226-2 11/20/19 16:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
COD	222	218	98.4	90.0-110	

L1161213-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1161213-05 11/20/19 16:05 • (MS) R3474226-4 11/20/19 16:05 • (MSD) R3474226-5 11/20/19 16:05

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 %
COD	400	75.5	492	491	104	104	1	80.0-120			0.157	20

Method Blank (MB)

(MB) R3473656-1 11/19/19 02:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1161143-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1161143-01 11/19/19 03:14 • (DUP) R3473656-3 11/19/19 03:21

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Hexavalent Chromium	0.000299	0.000302	1	0.732	J	20

L1161213-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1161213-12 11/19/19 06:33 • (DUP) R3473656-7 11/19/19 06:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Hexavalent Chromium	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3473656-2 11/19/19 03:07

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Hexavalent Chromium	0.00200	0.00201	101	90.0-110	

L1161143-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1161143-03 11/19/19 03:36 • (MS) R3473656-4 11/19/19 03:44 • (MSD) R3473656-5 11/19/19 03:51

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Hexavalent Chromium	0.0500	0.000284	0.0504	0.0508	100	101	1	90.0-110			0.799	20

L1161213-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1161213-10 11/19/19 06:19 • (MS) R3473656-6 11/19/19 06:26

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
	mg/l	mg/l	mg/l	%		%	
Hexavalent Chromium	0.0500	U	0.0499	99.9	1	90.0-110	

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

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	LA000356
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.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

F100

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

SUB CONTRATOR: ESC PACE	COMPANY: ESC PACE	PHONE: (800) 767-5859	FAX: (615) 758-5859
ADDRESS: 12065 Lebanon Rd		ACCOUNT #:	EMAIL:
CITY, STATE, ZIP: Mt. Juliet, TN 37122			

L1161213

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	1911589-001G	SL-5-GW	500HDPEH2SO4	Groundwater	11/13/2019 7:55:00 AM	1	COD**J and MDL**Lv 4	01
2	1911589-001H	SL-5-GW	120mL	Groundwater	11/13/2019 7:55:00 AM	1	Cr6**J and MDL**Lv 4	02
3	1911589-002G	SL-6-GW	500HDPEH2SO4	Groundwater	11/13/2019 8:55:00 AM	1	COD**J and MDL**Lv 4	03
4	1911589-002H	SL-6-GW	120mL	Groundwater	11/13/2019 8:55:00 AM	1	Cr6**J and MDL**Lv 4	04
5	1911589-003G	SL-7-GW	500HDPEH2SO4	Groundwater	11/13/2019 9:20:00 AM	1	COD**J and MDL**Lv 4	05
6	1911589-003H	SL-7-GW	120mL	Groundwater	11/13/2019 9:20:00 AM	1	Cr6**J and MDL**Lv 4	06
7	1911589-004G	SL-8-GW	500HDPEH2SO4	Groundwater	11/13/2019 10:00:00 AM	1	COD**J and MDL**Lv 4	07
8	1911589-004H	SL-8-GW	120mL	Groundwater	11/13/2019 10:00:00 AM	1	Cr6**J and MDL**Lv 4	08
9	1911589-005G	EB02	500HDPEH2SO4	Groundwater	11/13/2019 10:35:00 AM	1	COD**J and MDL**Lv 4	09
10	1911589-005H	EB02	120mL	Groundwater	11/13/2019 10:35:00 AM	1	Cr6**J and MDL**Lv 4	10
11	1911589-006G	DUP01	500HDPEH2SO4	Groundwater	11/13/2019	1	COD**J and MDL**Lv 4	11
12	1911589-006H	DUP01	120mL	Groundwater	11/13/2019	1	Cr6**J and MDL**Lv 4	12

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By:	Date: 11/13/2019	Time: 2:08 PM	Received By:	Date: 11/15/19	Time: 830
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

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

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 4-0=1=4.5 ~~A3+B~~ COCS1 Attempt to Cool ? _____
Comments: RAD SCREEN: <0.5 mR/hr

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: HALLENVANM	L1161213	
Cooler Received/Opened On: 11/15/19 Temperature:	4.5	
Received By: Hailey Melson		
Signature: Hailey Melson		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable		✓	
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-A** SampType: **MBLK** TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW** Batch ID: **A65095** RunNo: **65095**
Prep Date: Analysis Date: **12/11/2019** SeqNo: **2233517** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID: **LLLCS-A** SampType: **LCSLL** TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC** Batch ID: **A65095** RunNo: **65095**
Prep Date: Analysis Date: **12/11/2019** SeqNo: **2233518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0022	0.0020	0.002000	0	108	50	150			
Beryllium	0.0022	0.0020	0.002000	0	112	50	150			
Cadmium	0.0024	0.0020	0.002000	0	120	50	150			
Chromium	0.0059	0.0060	0.006000	0	98.2	50	150			J
Cobalt	0.0063	0.0060	0.006000	0	105	50	150			
Iron	0.019	0.020	0.02000	0	95.8	50	150			J
Manganese	0.0021	0.0020	0.002000	0	107	50	150			
Nickel	0.0033	0.010	0.005000	0	65.3	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.8	50	150			J
Vanadium	0.0098	0.050	0.01000	0	97.5	50	150			J
Zinc	0.011	0.010	0.01000	0	110	50	150			

Sample ID: **LCS-A** SampType: **LCS** TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW** Batch ID: **A65095** RunNo: **65095**
Prep Date: Analysis Date: **12/11/2019** SeqNo: **2233519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	101	85	115			
Beryllium	0.51	0.0020	0.5000	0	102	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.50	0.0060	0.5000	0	100	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.4	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.49	0.0020	0.5000	0	98.2	85	115			
Nickel	0.49	0.010	0.5000	0	99.0	85	115			
Silver	0.10	0.0050	0.1000	0	104	85	115			
Vanadium	0.51	0.050	0.5000	0	102	85	115			
Zinc	0.50	0.010	0.5000	0	99.9	85	115			

Sample ID: **1911589-005EMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **EB02**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233548** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	99.5	70	130			
Beryllium	0.51	0.0020	0.5000	0	101	70	130			
Cadmium	0.51	0.0020	0.5000	0	101	70	130			
Chromium	0.50	0.0060	0.5000	0	99.3	70	130			
Cobalt	0.48	0.0060	0.5000	0	95.9	70	130			
Iron	0.48	0.020	0.5000	0	97.0	70	130			
Manganese	0.48	0.0020	0.5000	0	96.4	70	130			
Nickel	0.49	0.010	0.5000	0	98.1	70	130			
Silver	0.11	0.0050	0.1000	0	105	70	130			
Vanadium	0.50	0.050	0.5000	0	101	70	130			
Zinc	0.51	0.010	0.5000	0.01776	98.6	70	130			

Sample ID: **1911589-005EMSD**	SampType: **MSD**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **EB02**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233549** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	101	70	130	1.14	20	
Beryllium	0.52	0.0020	0.5000	0	104	70	130	2.78	20	
Cadmium	0.51	0.0020	0.5000	0	102	70	130	1.11	20	
Chromium	0.50	0.0060	0.5000	0	100	70	130	0.707	20	
Cobalt	0.49	0.0060	0.5000	0	97.1	70	130	1.19	20	
Iron	0.50	0.020	0.5000	0	100	70	130	3.22	20	
Manganese	0.49	0.0020	0.5000	0	98.8	70	130	2.52	20	
Nickel	0.49	0.010	0.5000	0	98.7	70	130	0.594	20	
Silver	0.11	0.0050	0.1000	0	106	70	130	0.744	20	
Vanadium	0.51	0.050	0.5000	0	102	70	130	0.801	20	
Zinc	0.52	0.010	0.5000	0.01776	100	70	130	1.58	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48803**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **PBW**	Batch ID: **48803**	RunNo: **64568**
Prep Date: **11/14/2019**	Analysis Date: **11/15/2019**	SeqNo: **2211028** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Manganese	ND	0.0020								
Nickel	0.0017	0.010								J
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID: **LLLCS-48803**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC**	Batch ID: **48803**	RunNo: **64568**
Prep Date: **11/14/2019**	Analysis Date: **11/15/2019**	SeqNo: **2211030** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0020	0.0020	0.002000	0	98.8	50	150			J
Beryllium	0.0020	0.0020	0.002000	0	102	50	150			
Cadmium	0.0021	0.0020	0.002000	0	107	50	150			
Chromium	0.0065	0.0060	0.006000	0	108	50	150			
Cobalt	0.0063	0.0060	0.006000	0	106	50	150			
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Nickel	0.0069	0.010	0.005000	0	138	50	150			J
Silver	0.0046	0.0050	0.005000	0	91.7	50	150			J
Vanadium	0.0099	0.050	0.01000	0	99.2	50	150			J
Zinc	0.011	0.010	0.01000	0	112	50	150			

Sample ID: **LCS-48803**	SampType: **LCS**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW**	Batch ID: **48803**	RunNo: **64568**
Prep Date: **11/14/2019**	Analysis Date: **11/15/2019**	SeqNo: **2211033** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.9	85	115			
Beryllium	0.50	0.0020	0.5000	0	99.7	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.5	85	115			
Chromium	0.48	0.0060	0.5000	0	96.6	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.5	85	115			
Manganese	0.49	0.0020	0.5000	0	97.5	85	115			
Nickel	0.48	0.010	0.5000	0	96.2	85	115			
Silver	0.10	0.0050	0.1000	0	101	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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48803** SampType: **LCS** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW** Batch ID: **48803** RunNo: **64568**
Prep Date: **11/14/2019** Analysis Date: **11/15/2019** SeqNo: **2211033** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vanadium	0.49	0.050	0.5000	0	98.3	85	115			
Zinc	0.48	0.010	0.5000	0	95.1	85	115			

Sample ID: **MB-48803** SampType: **MBLK** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **PBW** Batch ID: **48803** RunNo: **64641**
Prep Date: **11/14/2019** Analysis Date: **11/20/2019** SeqNo: **2214250** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.012	0.020								J
Manganese	0.000091	0.0020								J
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID: **LLLCS-48803** SampType: **LCSLL** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC** Batch ID: **48803** RunNo: **64641**
Prep Date: **11/14/2019** Analysis Date: **11/20/2019** SeqNo: **2214254** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0023	0.0020	0.002000	0	113	50	150			
Beryllium	0.0020	0.0020	0.002000	0	99.5	50	150			J
Cadmium	0.0018	0.0020	0.002000	0	90.4	50	150			J
Chromium	0.0057	0.0060	0.006000	0	95.7	50	150			J
Cobalt	0.0058	0.0060	0.006000	0	97.2	50	150			J
Iron	0.027	0.020	0.02000	0	137	50	150			
Manganese	0.0021	0.0020	0.002000	0	107	50	150			
Nickel	0.0044	0.010	0.005000	0	88.1	50	150			J
Silver	0.0052	0.0050	0.005000	0	103	50	150			
Vanadium	0.010	0.050	0.01000	0	104	50	150			J
Zinc	0.0097	0.010	0.01000	0	97.4	50	150			J

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48803** SampType: **LCS** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW** Batch ID: **48803** RunNo: **64641**
Prep Date: **11/14/2019** Analysis Date: **11/20/2019** SeqNo: **2214255** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	99.8	85	115			
Beryllium	0.50	0.0020	0.5000	0	101	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	98.5	85	115			
Cobalt	0.49	0.0060	0.5000	0	98.3	85	115			
Iron	0.56	0.020	0.5000	0	112	85	115			
Manganese	0.49	0.0020	0.5000	0	98.3	85	115			
Nickel	0.50	0.010	0.5000	0	99.0	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Vanadium	0.50	0.050	0.5000	0	101	85	115			
Zinc	0.49	0.010	0.5000	0	97.9	85	115			

Sample ID: **MB-48803** SampType: **MBLK** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **PBW** Batch ID: **48803** RunNo: **64878**
Prep Date: **11/14/2019** Analysis Date: **12/2/2019** SeqNo: **2224519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.0078	0.020								J
Manganese	0.000076	0.0020								J
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID: **LLLCS-48803** SampType: **LCSLL** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC** Batch ID: **48803** RunNo: **64878**
Prep Date: **11/14/2019** Analysis Date: **12/2/2019** SeqNo: **2224520** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0024	0.0020	0.002000	0	118	50	150			
Beryllium	0.0018	0.0020	0.002000	0	88.5	50	150			J
Cadmium	0.0020	0.0020	0.002000	0	100	50	150			J
Chromium	0.0049	0.0060	0.006000	0	81.0	50	150			J
Cobalt	0.0061	0.0060	0.006000	0	102	50	150			
Iron	0.030	0.020	0.02000	0	148	50	150			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **LLLCS-48803**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC**	Batch ID: **48803**	RunNo: **64878**
Prep Date: **11/14/2019**	Analysis Date: **12/2/2019**	SeqNo: **2224520** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Nickel	0.0039	0.010	0.005000	0	77.5	50	150			J
Silver	0.0054	0.0050	0.005000	0	108	50	150			
Vanadium	0.0097	0.050	0.01000	0	96.5	50	150			J
Zinc	0.012	0.010	0.01000	0	116	50	150			

Sample ID: **LCS-48803**	SampType: **LCS**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW**	Batch ID: **48803**	RunNo: **64878**
Prep Date: **11/14/2019**	Analysis Date: **12/2/2019**	SeqNo: **2224521** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	98.9	85	115			
Beryllium	0.50	0.0020	0.5000	0	99.8	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Chromium	0.49	0.0060	0.5000	0	97.2	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.0	85	115			
Iron	0.57	0.020	0.5000	0	113	85	115			
Manganese	0.49	0.0020	0.5000	0	97.3	85	115			
Nickel	0.49	0.010	0.5000	0	97.7	85	115			
Silver	0.10	0.0050	0.1000	0	99.9	85	115			
Vanadium	0.50	0.050	0.5000	0	99.6	85	115			
Zinc	0.49	0.010	0.5000	0	97.8	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2208406** 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								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID: **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2208407** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00078	0.0010	0.001000	0	78.4	50	150			J
Arsenic	0.0011	0.0010	0.001000	0	106	50	150			
Lead	0.00050	0.00050	0.0005000	0	99.8	50	150			J
Selenium	0.0012	0.0010	0.001000	0	118	50	150			

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2208408** 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	96.5	85	115			
Arsenic	0.025	0.0010	0.02500	0	99.1	85	115			
Lead	0.012	0.00050	0.01250	0	98.3	85	115			
Selenium	0.023	0.0010	0.02500	0	93.3	85	115			

Sample ID: **1911589-005EMS**	SampType: **MS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **EB02**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209130** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.025	0.0010	0.02500	0	100	70	130			
Arsenic	0.025	0.0010	0.02500	0	100	70	130			
Lead	0.012	0.00050	0.01250	0	98.4	70	130			
Selenium	0.025	0.0010	0.02500	0	101	70	130			

Sample ID: **1911589-005EMSD**	SampType: **MSD**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **EB02**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209131** 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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **1911589-005EMSD** SampType: **MSD** TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **EB02** Batch ID: **B64505** RunNo: **64505**
Prep Date: Analysis Date: **11/14/2019** SeqNo: **2209131** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.025	0.0010	0.02500	0	101	70	130	0.434	20	
Arsenic	0.025	0.0010	0.02500	0	98.1	70	130	2.11	20	
Lead	0.012	0.00050	0.01250	0	96.7	70	130	1.72	20	
Selenium	0.025	0.0010	0.02500	0	100	70	130	1.18	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48803** SampType: **MBLK** TestCode: **200.8 ICPMS Metals:Total**
Client ID: **PBW** Batch ID: **48803** RunNo: **64589**
Prep Date: **11/14/2019** Analysis Date: **11/18/2019** SeqNo: **2211811** 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								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID: **MSLLLCS-48803** SampType: **LCSLL** TestCode: **200.8 ICPMS Metals:Total**
Client ID: **BatchQC** Batch ID: **48803** RunNo: **64589**
Prep Date: **11/14/2019** Analysis Date: **11/18/2019** SeqNo: **2211813** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0011	0.0010	0.001000	0	111	50	150			
Arsenic	0.00095	0.0010	0.001000	0	95.3	50	150			J
Lead	0.00050	0.00050	0.0005000	0	99.6	50	150			J
Selenium	0.00083	0.0010	0.001000	0	82.6	50	150			J

Sample ID: **MSLCS-48803** SampType: **LCS** TestCode: **200.8 ICPMS Metals:Total**
Client ID: **LCSW** Batch ID: **48803** RunNo: **64589**
Prep Date: **11/14/2019** Analysis Date: **11/18/2019** SeqNo: **2211815** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.026	0.0010	0.02500	0	105	85	115			
Arsenic	0.025	0.0010	0.02500	0	98.4	85	115			
Lead	0.012	0.00050	0.01250	0	96.7	85	115			
Selenium	0.024	0.0010	0.02500	0	95.6	85	115			

Sample ID: **1911589-006FMSLL** SampType: **MSLL** TestCode: **200.8 ICPMS Metals:Total**
Client ID: **DUP01** Batch ID: **48803** RunNo: **64589**
Prep Date: **11/14/2019** Analysis Date: **11/18/2019** SeqNo: **2211857** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.026	0.0010	0.02500	0	104	70	130			
Arsenic	0.037	0.0010	0.02500	0.01018	106	70	130			
Lead	0.012	0.00050	0.01250	0.0009151	86.6	70	130			
Selenium	0.027	0.0010	0.02500	0.0005258	105	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB-49059**	SampType: **MBLK**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW**	Batch ID: **49059**	RunNo: **64825**
Prep Date: **11/27/2019**	Analysis Date: **11/27/2019**	SeqNo: **2222169** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-49059**	SampType: **LCS**	TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW**	Batch ID: **49059**	RunNo: **64825**
Prep Date: **11/27/2019**	Analysis Date: **11/27/2019**	SeqNo: **2222170** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	99.0	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64531**	RunNo: **64531**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209587** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64531**	RunNo: **64531**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209588** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.8	0.50	5.000	0	95.1	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	93.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.6	90	110			
Sulfate	9.6	0.50	10.00	0	96.0	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64554**	RunNo: **64554**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210413** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64554**	RunNo: **64554**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210414** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	95.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **1911589-001CMS** SampType: **MS** TestCode: **EPA Method 8015D: Diesel Range**

Client ID: **SL-5-GW** Batch ID: **48838** RunNo: **64572**

Prep Date: **11/18/2019** Analysis Date: **11/18/2019** SeqNo: **2211865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.2	0.40	2.500	0	89.8	68.3	147			
Surr: DNOP	0.20		0.2500		78.9	81.5	152			S

Sample ID: **1911589-001CMSD** SampType: **MSD** TestCode: **EPA Method 8015D: Diesel Range**

Client ID: **SL-5-GW** Batch ID: **48838** RunNo: **64572**

Prep Date: **11/18/2019** Analysis Date: **11/18/2019** SeqNo: **2211866** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.2	0.40	2.500	0	89.3	68.3	147	0.583	20	
Surr: DNOP	0.19		0.2500		76.4	81.5	152	0	0	S

Sample ID: **LCS-48838** SampType: **LCS** TestCode: **EPA Method 8015D: Diesel Range**

Client ID: **LCSW** Batch ID: **48838** RunNo: **64572**

Prep Date: **11/18/2019** Analysis Date: **11/18/2019** SeqNo: **2211877** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.2	0.40	2.500	0	88.9	82	138			
Surr: DNOP	0.20		0.2500		81.3	81.5	152			S

Sample ID: **MB-48838** SampType: **MBLK** TestCode: **EPA Method 8015D: Diesel Range**

Client ID: **PBW** Batch ID: **48838** RunNo: **64572**

Prep Date: **11/18/2019** Analysis Date: **11/18/2019** SeqNo: **2211878** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.45		0.5000		90.9	81.5	152			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G64557**	RunNo: **64557**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210563** 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		94.1	65.8	143			

Sample ID: **2.5UG GRO LCSB**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G64557**	RunNo: **64557**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210564** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	73.6	119			
Surr: BFB	22		20.00		108	65.8	143			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs2**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **LCSW**	Batch ID: **R64499**	RunNo: **64499**							
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209538**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	19	1.0	20.00	0	97.0	70	130			
Chlorobenzene	20	1.0	20.00	0	99.8	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.7	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	93.8	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		97.8	70	130			
Surr: Dibromofluoromethane	10		10.00		99.8	70	130			
Surr: Toluene-d8	9.8		10.00		98.1	70	130			

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**							
Client ID: **PBW**	Batch ID: **R64499**	RunNo: **64499**							
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209539**	Units: **µg/L**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64499**	RunNo: **64499**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209539** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb2**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64499**	RunNo: **64499**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209539** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.9		10.00		98.9	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2209848** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.3	70	130			
Toluene	19	1.0	20.00	0	93.1	70	130			
Chlorobenzene	19	1.0	20.00	0	94.0	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.9	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.6	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.1	70	130			
Surr: Toluene-d8	9.6		10.00		96.0	70	130			

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210298** 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								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210298** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210298** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.7	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **W64598**	RunNo: **64598**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2212650** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.7	70	130			
Toluene	19	1.0	20.00	0	94.2	70	130			
Chlorobenzene	19	1.0	20.00	0	95.4	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.6	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	89.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.1	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.2	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W64598**	RunNo: **64598**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2213677** 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								

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**
17-Jan-20

Client: Marathon
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W64598**	RunNo: **64598**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2213677** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911589**

17-Jan-20

Client: Marathon

Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **W64598**	RunNo: **64598**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2213677** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.1	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	9.6		10.00		96.5	70	130			

Qualifiers:

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

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: **MARATHON GALLUP** Work Order Number: **1911589** RcptNo: **1**

Received By: **Leah Baca** **11/13/2019 1:15:00 PM** Leah Baca

Completed By: **Leah Baca** **11/13/2019 1:36:12 PM** Leah Baca

Reviewed By: IO 11/13/19

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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

of preserved bottles checked for pH: 24 (<2 or >12 unless noted)

Adjusted? NO

Checked by: VG 11/13/19

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	11.1	Good	Yes			
2	9.0	Good	Yes			
3	8.6	Good	Yes			
4	2.5	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: Remarks

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. 1911589	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-13-19	0755	Water	SL-5-GW	40ml voa - 5	HCl	-001			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber - 3	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date: 11-13-19 Time: 1110 Relinquished by:

Received by: Date Time

Date: Time: Relinquished by:

Received by: Courier Date: 11/13 Time: 1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

11.4 - CF 0.3 = 11.1

9.3 = 9.0

8.9 = 8.6

2.8 - CF 0.3 = 2.5

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: Remarks

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. 1911589	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-13-19	0855	Water	SL-6-GW	40ml voa - 5	HCl	-002			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber - 3	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date	Time	Relinquished by:	Received by:	Date	Time
11-13-19	1110				
Date:	Time:	Relinquished by:	Received by: Leah Baca	11/13/19	1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

11.4 - CF 0.3 = 11.1

9.3 = 9.0

8.9 = 8.6

2.8 - CF 0.3 = 2.5

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: Remarks

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. 1911589	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-13-19	0920	Water	SL-7-GW	40ml voa - 5	HCl	-003			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber - 3	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date	Time	Relinquished by:	Received by:	Date	Time
11-13-19 #110	1110				
Date:	Time:	Relinquished by:	Received by:	Date	Time
			Leah Baca	11/13/19	1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

11.4 - CF 0.3 = 11.1

9.3 = 9.0

8.9 = 8.6

2.8 - CF 0.3 = 2.5

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: Remarks

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. 1911589	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11.13.19	10:00	Water	SL-8-GW	40ml voa - 5	HCl	-004			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber - 3	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date	Time	Relinquished by:	Received by:	Date	Time
11.13.19	1110				
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

11.4 - CF 0.3 = 11.1

9.3 79.0

8.9 = 8.6

2.8 - CF 0.3 = 2.5

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: Remarks

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. 1911589	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11.13.19	10:35	Water	EB02	40ml voa - 5	HCl	-005			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber - 3	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date	Time	Relinquished by:	Received by:	Date	Time
11.13.19	1110				
			Leah Baca	11/13/19	1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

11.4 - CF 0.3 = 11.1

9.3 = 9.0

8.9 = 8.6

2.8 - CF 0.3 = 2.5

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: Remarks

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. 1911589	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11.13.19	—	Water	DUP01	40ml voa - 5	HCl	-006			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber - 3	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date	Time	Relinquished by:	Received by:	Date	Time
11.13.19	1110				
Date:	Time:	Relinquished by:	Received by: Leah Baca	Date: 11/13/19	Time: 1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

11.4 - CF 0.3 = 11.1

9.3 = 9.0

8.9 = 8.6

2.8 - CF 0.3 = 2.5

Chain-of-Custody Record

Client: Marathon Petroleum Co. LP
GALLUP Refinery
Mailing Address: 92 Giant Crossing Rd.
Gallup, NM 87301
Phone #: 505-726-9745
email or Fax#: Bmoore@marathonpetroleum.com
QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) Excel

Turn-Around Time:
☐ Standard ☐ **Rush**
Project Name:
Project #:
Project Manager:
Sampler:
On Ice: ☒Yes ☐ No
Sample Temperature: Remark

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. 1911589 LB	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
11-13-19	-	Water	Trip Blank	40ml Voa-3	HCl	-007										X						
↓	-	↓	↓	↓	↓	-008										X						
↓	-	↓	↓	↓	↓	-009										X						

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-13-19	1110				
Date:	Time:	Relinquished by:	Received by:	Date	Time
			Leah Baca	11/13/19	1315

Remarks:
11.4 - CF 0.3 = 11.4 2.8 - CF 0.3 = 2.5
9.3 = 9.0
8.9 = 8.6

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.

Sanitary Sewer Lagoon – Groundwater, Surface Water, and Equipment Blank Analytical Requirements

- SW-846 Method 8260 for [redacted] volatile organic compounds;
- SW-846 Method 8270 for [redacted] semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics.

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020
Chloride	EPA Method 300.0
Fluoride	EPA Method 300.0
Nitrate	EPA Method 300.0
Nitrite	EPA Method 300.0
Sulfate	EPA Method 300.0
BOD	SM5210B
COD	EPA Method 410.4
[redacted]	[redacted]
[redacted]	[redacted]

Semivolatiles Limits * Report only these compounds. MDL must be met.
Dibenz(a,h)anthracene will be analzyed by Hall by Method 8310

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_ key	EPA Screening Levels.Tap Water	EPA TapW_ key	MCL	MDL	Analytical Method
1,2,4-Trichlorobenzene	-	1.15E+01	c	1.20E+00	c	**70**	4.04	8270
1,2-Dichlorobenzene	**600**	3.70E+02	n	3.00E+02	n	600	4.77	8270
1,3-Dichlorobenzene	-	-	-	-	-	-	5.27	8270
1,4-Dichlorobenzene	**75**	4.82E+00	c	4.80E-01	c	75	4.42	8270
1,4-Dioxane	-	**4.59E+00**	c	4.60E-01	c	-	2.00	8270/8270SIM
1-Methylnaphthalene	-	**1.14E+01**	c	1.10E+00	c	-	3.07	8270
2,4,5-Trichlorophenol	-	**1.17E+03**	n	1.20E+03	n	-	2.97	8270
2,4,6-Trichlorophenol	-	**1.19E+01**	n	4.10E+00	c**	-	2.33	8270
2,4-Dichlorophenol	-	**4.53E+01**	n	4.60E+01	n	-	2.92	8270
2,4-Dimethylphenol	-	**3.54E+02**	n	3.60E+02	n	-	2.97	8270
2,4-Dinitrophenol	-	**3.87E+01**	n	3.90E+01	n	-	2.59	8270
2,4-Dinitrotoluene	-	**2.37E+00**	c	2.40E-01	c	-	2.00	8270
2,6-Dinitrotoluene	-	**4.85E-01**	n	4.90E-02	c	-	0.20	8270
2-Chloronaphthalene	-	**7.33E+02**	n	7.50E+02	n	-	3.07	8270
2-Chlorophenol	-	**9.10E+01**	n	9.10E+01	n	-	2.69	8270
2-Methylnaphthalene	-	**3.51E+01**	n	3.60E+01	n	-	3.02	8270
2-Methylphenol	-	-	-	**9.30E+02**	n	-	2.86	8270
2-Nitroaniline	-	-	-	**1.90E+02**	n	-	3.17	8270
2-Nitrophenol	-	-	-	-	-	-	2.97	8270
3,3´-Dichlorobenzidine	-	**1.25E+00**	c	1.30E-01	c	-	1.00	8270
3+4-Methylphenol	-	-	-	**9.30E+02**	n	-	3.58	8270
3-Nitroaniline	-	-	-	-	-	-	3.24	8270
4,6-Dinitro-2-methylphenol	-	**1.52E+00**	n	-	-	-	1.00	8270
4-Bromophenyl phenyl ether	-	-	-	-	-	-	3.00	8270
4-Chloro-3-methylphenol	-	-	-	-	-	-	3.41	8270
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	2.44	8270
4-Nitroaniline	-	-	-	**3.80E+00**	c*	-	2.69	8270
4-Nitrophenol	-	-	-	-	-	-	7.57	8270
Acenaphthene	-	**5.35E+02**	n	5.30E+02	n	-	2.96	8270
Acenaphthylene	-	-	-	-	-	-	2.40	8270
Aniline	-	-	-	**1.30E+01**	c*	-	3.58	8270
Anthracene	-	**1.72E+03**	n	1.80E+03	n	-	2.66	8270
Benz(a)anthracene	-	**1.20E-01**	c	3.00E-02	c	-	0.10	8270
Benzo(a)pyrene	**0.2**	2.51E-01	c	2.50E-02	c	0.2	0.10	8270
Benzo(b)fluoranthene	-	**3.43E-01**	c	2.50E-01	c	-	0.10	8270
Benzo(g,h,i)perylene	-	-	-	-	-	-	2.23	8270
Benzo(k)fluoranthene	-	**3.43E+00**	c	2.50E+00	c	-	2.88	8270
Benzoic acid	-	-	-	**7.50E+04**	n	-	10.72	8270
Benzyl alcohol	-	-	-	**2.00E+03**	n	-	2.36	8270
Bis(2-chloroethoxy)methane	-	-	-	**5.90E+01**	n	-	2.60	8270

Bis(2-chloroisopropyl)ether	-	**9.81E+00**	c	-	-	-	3.86	8270
Bis(2-ethylhexyl)phthalate	-	5.56E+01	c	5.60E+00	c*	**6**	4.30	8270
Butyl benzyl phthalate	-	-	-	**1.60E+01**	c	-	3.33	8270
Carbazole	-	-	-	-	-	-	2.89	8270
Chrysene	-	**3.43E+01**	c	2.50E+01	c	-	2.79	8270
Dibenz(a,h)anthracene	-	**3.43E-02**	c	2.50E-02	c	-	0.03	8310
Dibenzofuran	-	-	-	**7.90E+00**	n	-	3.19	8270
Diethyl phthalate	-	**1.48E+04**	n	1.50E+04	n	-	2.87	8270
Dimethyl phthalate	-	**6.12E+02**	n	-	-	-	3.24	8270
Di-n-butyl phthalate	-	**8.85E+02**	n	-	-	-	2.71	8270
Di-n-octyl phthalate	-	-	-	-	-	-	3.52	8270
Fluoranthene	-	**8.02E+02**	n	8.00E+02	n	-	2.41	8270
Fluorene	-	**2.88E+02**	n	2.90E+02	n	-	2.89	8270
Hexachlorobenzene	-	9.76E-02	c	9.80E-03	c	**1**	1.00	8270
Hexachlorobutadiene	-	**1.39E+00**	c	1.40E-01	c*	-	1.00	8270
Hexachlorocyclopentadiene	-	4.11E-01	n	4.10E-01	n	**50**	3.58	8270
Hexachloroethane	-	**3.28E+00**	c	3.30E-01	c**	-	2.00	8270
Indeno(1,2,3-cd)pyrene	-	**3.43E-01**	c	2.50E-01	c	-	0.20	8270
Isophorone	-	**7.81E+02**	c	7.80E+01	c	-	3.05	8270
Naphthalene	-	**1.65E+00**	c	1.70E-01	c*	-	1.00	8270
Nitrobenzene	-	**1.40E+00**	c	1.40E-01	c	-	1.00	8270
N-Nitrosodiphenylamine	-	**1.22E+02**	c	1.20E+01	c	-	2.38	8270
Phenanthrene	-	**1.70E+02**	n	-	-	-	2.78	8270
Pentachlorophenol	**1**	4.13E-01	c	4.10E-02	c	1	1.00	8270
Phenol	-	**5.76E+03**	n	5.80E+03	n	-	8.04	8270
Pyrene	-	**1.17E+02**	n	1.20E+02	n	-	2.50	8270
Pyridine	-	-	-	**2.00E+01**	n	-	9.60	8270

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

January 28, 2020

Brian Moore

Marathon Oil
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX

RE: Sanitary Sewer Lagoon OrderNo.: 1911594

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 7 sample(s) on 11/13/2019 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued January 21, 2020.

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. 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. All samples are reported as received unless otherwise indicated.

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

Sincerely,



Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

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

Case Narrative

WO#: **1911594**
Date: **1/28/2020**

CLIENT: Marathon Oil
Project: Sanitary Sewer Lagoon

Analytical Notes Regarding BOD:
Due to a lab error BOD is not able to be reported.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-1-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 8:00:00 AM
Lab ID: 1911594-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 6:07:00 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 6:07:00 PM	48838
Surr: DNOP	101	0	81.5-152		%Rec	1	11/18/2019 6:07:00 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	1.2	0.021	0.050		mg/L	1	11/18/2019 3:08:13 PM	A64584
Surr: BFB	138	0	65.8-143		%Rec	1	11/18/2019 3:08:13 PM	A64584
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	ND	0.14	0.50		mg/L	5	11/13/2019 5:43:52 PM	R64487
Chloride	2800	100	100	*	mg/L	200	11/15/2019 8:24:14 PM	R64556
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/13/2019 5:43:52 PM	R64487
Nitrogen, Nitrate (As N)	ND	0.12	2.0		mg/L	20	11/13/2019 5:56:44 PM	R64487
Sulfate	290	1.3	10	*	mg/L	20	11/13/2019 5:56:44 PM	R64487
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.46	0.00065	0.0020		mg/L	1	12/11/2019 9:12:32 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 9:12:32 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 9:12:32 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 9:12:32 AM	A65095
Cobalt	0.0082	0.0031	0.0060		mg/L	1	12/11/2019 9:12:32 AM	A65095
Iron	0.88	0.0087	0.020	*	mg/L	1	12/11/2019 9:12:32 AM	A65095
Manganese	17	0.0058	0.040	*	mg/L	20	12/11/2019 9:23:23 AM	A65095
Nickel	0.031	0.0040	0.010		mg/L	1	12/11/2019 9:12:32 AM	A65095
Silver	0.0096	0.00094	0.0050		mg/L	1	12/11/2019 9:12:32 AM	A65095
Vanadium	0.0026	0.0020	0.050	J	mg/L	1	12/11/2019 9:12:32 AM	A65095
Zinc	0.016	0.0023	0.010		mg/L	1	12/11/2019 9:12:32 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.47	0.00049	0.0020		mg/L	1	11/27/2019 6:42:37 PM	48856
Beryllium	0.00032	0.00022	0.0020	J	mg/L	1	11/27/2019 6:42:37 PM	48856
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:42:37 PM	48856
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:42:37 PM	48856
Cobalt	0.0081	0.0012	0.0060		mg/L	1	11/27/2019 6:42:37 PM	48856
Iron	2.1	0.030	0.10	*	mg/L	5	11/27/2019 6:50:53 PM	48856
Manganese	15	0.0012	0.040	*	mg/L	20	11/27/2019 6:52:55 PM	48856
Nickel	0.033	0.0015	0.010		mg/L	1	11/27/2019 6:42:37 PM	48856
Silver	0.0098	0.0014	0.0050		mg/L	1	11/27/2019 6:42:37 PM	48856
Vanadium	0.0055	0.00054	0.050	J	mg/L	1	11/27/2019 6:42:37 PM	48856
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 6:42:37 PM	48856
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-1-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 8:00:00 AM
Lab ID: 1911594-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.0019	0.0050		mg/L	5	11/20/2019 12:42:31 P	A64635
Arsenic	0.0038	0.00050	0.0050	J	mg/L	5	11/19/2019 1:42:27 PM	A64608
Lead	ND	0.00027	0.0025		mg/L	5	11/19/2019 1:42:27 PM	A64608
Selenium	ND	0.00086	0.0050		mg/L	5	11/19/2019 1:42:27 PM	A64608
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00078	0.0050		mg/L	5	11/19/2019 10:26:18 A	48856
Arsenic	0.0058	0.0016	0.0050		mg/L	5	11/19/2019 10:26:18 A	48856
Lead	0.00056	0.00013	0.0025	J	mg/L	5	11/19/2019 10:26:18 A	48856
Selenium	ND	0.0024	0.0050		mg/L	5	11/19/2019 10:26:18 A	48856
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.00012	0.00020		mg/L	1	12/2/2019 5:24:48 PM	49083
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	200	1.7	10		µg/L	10	11/15/2019 7:21:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Ethylbenzene	0.96	0.13	1.0	J	µg/L	1	11/15/2019 12:12:00 P	R64537
Methyl tert-butyl ether (MTBE)	76	0.46	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,3,5-Trimethylbenzene	0.30	0.19	1.0	J	µg/L	1	11/15/2019 12:12:00 P	R64537
1,2-Dichloroethane (EDC)	7.4	0.19	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Naphthalene	0.31	0.28	2.0	J	µg/L	1	11/15/2019 12:12:00 P	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 12:12:00 P	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Acetone	7.5	1.2	10	J	µg/L	1	11/15/2019 12:12:00 P	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 12:12:00 P	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 12:12:00 P	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 12:12:00 P	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 12:12:00 P	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
cis-1,2-DCE	3.3	0.19	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-1-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 8:00:00 AM
Lab ID: 1911594-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,4-Dichlorobenzene	1.7	0.29	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,1-Dichloroethane	53	0.14	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,1-Dichloroethene	25	0.21	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 12:12:00 P	R64537
Isopropylbenzene	3.5	0.19	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 12:12:00 P	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 12:12:00 P	R64537
n-Butylbenzene	0.49	0.23	3.0	J	µg/L	1	11/15/2019 12:12:00 P	R64537
n-Propylbenzene	0.23	0.21	1.0	J	µg/L	1	11/15/2019 12:12:00 P	R64537
sec-Butylbenzene	0.70	0.25	1.0	J	µg/L	1	11/15/2019 12:12:00 P	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,1,1-Trichloroethane	1.6	0.17	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
1,1,2-Trichloroethane	1.1	0.22	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Trichloroethene (TCE)	3.8	0.17	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 12:12:00 P	R64537
Xylenes, Total	0.65	0.45	1.5	J	µg/L	1	11/15/2019 12:12:00 P	R64537
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	11/15/2019 12:12:00 P	R64537
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	11/15/2019 12:12:00 P	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-1-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 8:00:00 AM
Lab ID: 1911594-001
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	97.2	0	70-130		%Rec	1	11/15/2019 12:12:00 P	R64537
Surr: Toluene-d8	98.0	0	70-130		%Rec	1	11/15/2019 12:12:00 P	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-2-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 9:25:00 AM
Lab ID: 1911594-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 6:31:21 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 6:31:21 PM	48838
Surr: DNOP	96.7	0	81.5-152		%Rec	1	11/18/2019 6:31:21 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.039	0.021	0.050	J	mg/L	1	11/18/2019 3:31:11 PM	A64584
Surr: BFB	97.4	0	65.8-143		%Rec	1	11/18/2019 3:31:11 PM	A64584
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	ND	0.14	0.50		mg/L	5	11/13/2019 6:09:35 PM	R64487
Chloride	110	10	10		mg/L	20	11/13/2019 6:22:27 PM	R64487
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/13/2019 6:09:35 PM	R64487
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/13/2019 6:09:35 PM	R64487
Sulfate	270	1.3	10	*	mg/L	20	11/13/2019 6:22:27 PM	R64487
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.034	0.00065	0.0020		mg/L	1	12/11/2019 9:25:37 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 9:25:37 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 9:25:37 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 9:25:37 AM	A65095
Cobalt	ND	0.0031	0.0060		mg/L	1	12/11/2019 9:25:37 AM	A65095
Iron	0.019	0.0087	0.020	J	mg/L	1	12/11/2019 9:25:37 AM	A65095
Manganese	0.79	0.00029	0.0020	*	mg/L	1	12/11/2019 9:25:37 AM	A65095
Nickel	0.0049	0.0040	0.010	J	mg/L	1	12/11/2019 9:25:37 AM	A65095
Silver	0.0015	0.00094	0.0050	J	mg/L	1	12/11/2019 9:25:37 AM	A65095
Vanadium	0.0054	0.0020	0.050	J	mg/L	1	12/11/2019 9:25:37 AM	A65095
Zinc	0.021	0.0023	0.010		mg/L	1	12/11/2019 9:25:37 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.070	0.00049	0.0020		mg/L	1	11/27/2019 6:55:05 PM	48856
Beryllium	0.00024	0.00022	0.0020	J	mg/L	1	11/27/2019 6:55:05 PM	48856
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:55:05 PM	48856
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 6:55:05 PM	48856
Cobalt	0.0025	0.0012	0.0060	J	mg/L	1	11/27/2019 6:55:05 PM	48856
Iron	0.91	0.0061	0.020	*	mg/L	1	11/27/2019 6:55:05 PM	48856
Manganese	0.89	0.000060	0.0020	*	mg/L	1	11/27/2019 6:55:05 PM	48856
Nickel	0.011	0.0015	0.010		mg/L	1	11/27/2019 6:55:05 PM	48856
Silver	0.0022	0.0014	0.0050	J	mg/L	1	11/27/2019 6:55:05 PM	48856
Vanadium	0.0078	0.00054	0.050	J	mg/L	1	11/27/2019 6:55:05 PM	48856
Zinc	0.0060	0.0058	0.010	J	mg/L	1	11/27/2019 6:55:05 PM	48856
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-2-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 9:25:00 AM
Lab ID: 1911594-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 2:07:08 PM	B64505
Arsenic	0.0012	0.00010	0.0010		mg/L	1	11/14/2019 2:07:08 PM	B64505
Lead	0.00033	0.000055	0.00050	J	mg/L	1	11/14/2019 2:07:08 PM	B64505
Selenium	0.00021	0.00017	0.0010	J	mg/L	1	11/14/2019 2:07:08 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/19/2019 10:17:47 A	48856
Arsenic	0.0017	0.00031	0.0010		mg/L	1	11/19/2019 10:17:47 A	48856
Lead	0.0012	0.000026	0.00050		mg/L	1	11/19/2019 10:17:47 A	48856
Selenium	ND	0.00048	0.0010		mg/L	1	11/19/2019 10:17:47 A	48856
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.00012	0.00020		mg/L	1	12/2/2019 5:31:29 PM	49083
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	0.98	0.17	1.0	J	µg/L	1	11/15/2019 6:09:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Methyl tert-butyl ether (MTBE)	44	0.46	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Acetone	ND	1.2	10		µg/L	1	11/15/2019 6:09:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 6:09:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 6:09:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
cis-1,2-DCE	0.42	0.19	1.0	J	µg/L	1	11/15/2019 6:09:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-2-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 9:25:00 AM
Lab ID: 1911594-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,4-Dichlorobenzene	0.92	0.29	1.0	J	µg/L	1	11/15/2019 6:09:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,1-Dichloroethane	1.7	0.14	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,1-Dichloroethene	1.2	0.21	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 6:09:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 6:09:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 6:09:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 6:09:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	11/15/2019 6:09:00 PM	R64537
Surr: 4-Bromofluorobenzene	99.4	0	70-130		%Rec	1	11/15/2019 6:09:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-2-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 9:25:00 AM
Lab ID: 1911594-002
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	97.8	0	70-130		%Rec	1	11/15/2019 6:09:00 PM	R64537
Surr: Toluene-d8	97.4	0	70-130		%Rec	1	11/15/2019 6:09:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-3-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 11:10:00 AM
Lab ID: 1911594-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 6:55:44 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 6:55:44 PM	48838
Surr: DNOP	101	0	81.5-152		%Rec	1	11/18/2019 6:55:44 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.034	0.021	0.050	J	mg/L	1	11/18/2019 3:53:55 PM	A64584
Surr: BFB	98.8	0	65.8-143		%Rec	1	11/18/2019 3:53:55 PM	A64584
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	ND	0.14	0.50		mg/L	5	11/13/2019 6:35:17 PM	R64487
Chloride	110	10	10		mg/L	20	11/13/2019 6:48:08 PM	R64487
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/13/2019 6:35:17 PM	R64487
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/13/2019 6:35:17 PM	R64487
Sulfate	270	1.3	10	*	mg/L	20	11/13/2019 6:48:08 PM	R64487
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.033	0.00065	0.0020		mg/L	1	12/11/2019 9:27:41 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 9:27:41 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 9:27:41 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 9:27:41 AM	A65095
Cobalt	0.0035	0.0031	0.0060	J	mg/L	1	12/11/2019 9:27:41 AM	A65095
Iron	ND	0.0087	0.020		mg/L	1	12/11/2019 9:27:41 AM	A65095
Manganese	0.62	0.00029	0.0020	*	mg/L	1	12/11/2019 9:27:41 AM	A65095
Nickel	0.0047	0.0040	0.010	J	mg/L	1	12/11/2019 9:27:41 AM	A65095
Silver	0.0015	0.00094	0.0050	J	mg/L	1	12/11/2019 9:27:41 AM	A65095
Vanadium	0.0050	0.0020	0.050	J	mg/L	1	12/11/2019 9:27:41 AM	A65095
Zinc	0.053	0.0023	0.010		mg/L	1	12/11/2019 9:27:41 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.088	0.00049	0.0020		mg/L	1	11/27/2019 6:58:52 PM	48856
Beryllium	ND	0.00022	0.0020		mg/L	1	11/27/2019 6:58:52 PM	48856
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 6:58:52 PM	48856
Chromium	0.0018	0.0012	0.0060	J	mg/L	1	11/27/2019 6:58:52 PM	48856
Cobalt	0.0036	0.0012	0.0060	J	mg/L	1	11/27/2019 6:58:52 PM	48856
Iron	1.7	0.061	0.20	*	mg/L	10	11/27/2019 7:00:41 PM	48856
Manganese	0.72	0.000060	0.0020	*	mg/L	1	11/27/2019 6:58:52 PM	48856
Nickel	0.011	0.0015	0.010		mg/L	1	11/27/2019 6:58:52 PM	48856
Silver	ND	0.0014	0.0050		mg/L	1	11/27/2019 6:58:52 PM	48856
Vanadium	0.011	0.00054	0.050	J	mg/L	1	11/27/2019 6:58:52 PM	48856
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 6:58:52 PM	48856
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-3-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 11:10:00 AM
Lab ID: 1911594-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 2:09:45 PM	B64505
Arsenic	0.0012	0.00010	0.0010		mg/L	1	11/14/2019 2:09:45 PM	B64505
Lead	0.00035	0.000055	0.00050	J	mg/L	1	11/14/2019 2:09:45 PM	B64505
Selenium	0.00032	0.00017	0.0010	J	mg/L	1	11/14/2019 2:09:45 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/19/2019 10:19:55 A	48856
Arsenic	0.0016	0.00031	0.0010		mg/L	1	11/19/2019 10:19:55 A	48856
Lead	0.0024	0.000026	0.00050		mg/L	1	11/19/2019 10:19:55 A	48856
Selenium	0.00056	0.00048	0.0010	J	mg/L	1	11/19/2019 10:19:55 A	48856
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.00012	0.00020		mg/L	1	12/2/2019 5:33:43 PM	49083
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	0.38	0.17	1.0	J	µg/L	1	11/15/2019 1:48:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Methyl tert-butyl ether (MTBE)	37	0.46	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Acetone	2.6	1.2	10	J	µg/L	1	11/15/2019 1:48:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 1:48:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 1:48:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
cis-1,2-DCE	0.31	0.19	1.0	J	µg/L	1	11/15/2019 1:48:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-3-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 11:10:00 AM
Lab ID: 1911594-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,4-Dichlorobenzene	0.57	0.29	1.0	J	µg/L	1	11/15/2019 1:48:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,1-Dichloroethane	1.2	0.14	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,1-Dichloroethene	0.74	0.21	1.0	J	µg/L	1	11/15/2019 1:48:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 1:48:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 1:48:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
sec-Butylbenzene	0.42	0.25	1.0	J	µg/L	1	11/15/2019 1:48:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 1:48:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 1:48:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	1	11/15/2019 1:48:00 PM	R64537
Surr: 4-Bromofluorobenzene	99.7	0	70-130		%Rec	1	11/15/2019 1:48:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-3-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 11:10:00 AM
Lab ID: 1911594-003
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	97.4	0	70-130		%Rec	1	11/15/2019 1:48:00 PM	R64537
Surr: Toluene-d8	98.5	0	70-130		%Rec	1	11/15/2019 1:48:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-4-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:10:00 PM
Lab ID: 1911594-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 7:19:56 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 7:19:56 PM	48838
Surr: DNOP	100	0	81.5-152		%Rec	1	11/18/2019 7:19:56 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.025	0.021	0.050	J	mg/L	1	11/18/2019 4:16:35 PM	A64584
Surr: BFB	101	0	65.8-143		%Rec	1	11/18/2019 4:16:35 PM	A64584
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	ND	0.14	0.50		mg/L	5	11/13/2019 7:01:01 PM	R64487
Chloride	130	10	10		mg/L	20	11/13/2019 7:13:53 PM	R64487
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/13/2019 7:01:01 PM	R64487
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/13/2019 7:01:01 PM	R64487
Sulfate	350	1.3	10	*	mg/L	20	11/13/2019 7:13:53 PM	R64487
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	0.027	0.00065	0.0020		mg/L	1	12/11/2019 9:29:44 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 9:29:44 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 9:29:44 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 9:29:44 AM	A65095
Cobalt	0.0047	0.0031	0.0060	J	mg/L	1	12/11/2019 9:29:44 AM	A65095
Iron	ND	0.0087	0.020		mg/L	1	12/11/2019 9:29:44 AM	A65095
Manganese	0.54	0.00029	0.0020	*	mg/L	1	12/11/2019 9:29:44 AM	A65095
Nickel	0.0056	0.0040	0.010	J	mg/L	1	12/11/2019 9:29:44 AM	A65095
Silver	0.0015	0.00094	0.0050	J	mg/L	1	12/11/2019 9:29:44 AM	A65095
Vanadium	0.0063	0.0020	0.050	J	mg/L	1	12/11/2019 9:29:44 AM	A65095
Zinc	0.014	0.0023	0.010		mg/L	1	12/11/2019 9:29:44 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	0.094	0.00049	0.0020		mg/L	1	11/27/2019 7:02:52 PM	48856
Beryllium	0.00036	0.00022	0.0020	J	mg/L	1	11/27/2019 7:02:52 PM	48856
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 7:02:52 PM	48856
Chromium	0.0029	0.0012	0.0060	J	mg/L	1	11/27/2019 7:02:52 PM	48856
Cobalt	0.0056	0.0012	0.0060	J	mg/L	1	11/27/2019 7:02:52 PM	48856
Iron	2.7	0.030	0.10	*	mg/L	5	11/27/2019 7:04:41 PM	48856
Manganese	0.67	0.000060	0.0020	*	mg/L	1	11/27/2019 7:02:52 PM	48856
Nickel	0.011	0.0015	0.010		mg/L	1	11/27/2019 7:02:52 PM	48856
Silver	ND	0.0014	0.0050		mg/L	1	11/27/2019 7:02:52 PM	48856
Vanadium	0.013	0.00054	0.050	J	mg/L	1	11/27/2019 7:02:52 PM	48856
Zinc	0.0081	0.0058	0.010	J	mg/L	1	11/27/2019 7:02:52 PM	48856
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-4-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:10:00 PM
Lab ID: 1911594-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 2:12:23 PM	B64505
Arsenic	0.0013	0.00010	0.0010		mg/L	1	11/14/2019 2:12:23 PM	B64505
Lead	0.00026	0.000055	0.00050	J	mg/L	1	11/14/2019 2:12:23 PM	B64505
Selenium	0.00031	0.00017	0.0010	J	mg/L	1	11/14/2019 2:12:23 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/19/2019 10:22:02 A	48856
Arsenic	0.0023	0.00031	0.0010		mg/L	1	11/19/2019 10:22:02 A	48856
Lead	0.0035	0.000026	0.00050		mg/L	1	11/19/2019 10:22:02 A	48856
Selenium	0.00075	0.00048	0.0010	J	mg/L	1	11/19/2019 10:22:02 A	48856
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.00012	0.00020		mg/L	1	12/2/2019 5:35:58 PM	49083
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	0.17	0.17	1.0	J	µg/L	1	11/15/2019 2:12:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Methyl tert-butyl ether (MTBE)	18	0.46	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Acetone	ND	1.2	10		µg/L	1	11/15/2019 2:12:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 2:12:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 2:12:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-4-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:10:00 PM
Lab ID: 1911594-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 2:12:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 2:12:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
sec-Butylbenzene	0.81	0.25	1.0	J	µg/L	1	11/15/2019 2:12:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 2:12:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 2:12:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	11/15/2019 2:12:00 PM	R64537
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	11/15/2019 2:12:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: SL-4-GW
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:10:00 PM
Lab ID: 1911594-004
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	98.3	0	70-130		%Rec	1	11/15/2019 2:12:00 PM	R64537
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	11/15/2019 2:12:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: EB01
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:30:00 PM
Lab ID: 1911594-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: DIESEL RANGE							Analyst: **BRM**	
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	11/18/2019 7:44:15 PM	48838
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	11/18/2019 7:44:15 PM	48838
Surr: DNOP	102	0	81.5-152		%Rec	1	11/18/2019 7:44:15 PM	48838
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/18/2019 4:39:21 PM	A64584
Surr: BFB	98.8	0	65.8-143		%Rec	1	11/18/2019 4:39:21 PM	A64584
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Fluoride	ND	0.029	0.10		mg/L	1	11/13/2019 7:53:06 PM	R64487
Chloride	ND	0.50	0.50		mg/L	1	11/13/2019 7:53:06 PM	R64487
Nitrogen, Nitrite (As N)	ND	0.0054	0.10		mg/L	1	11/13/2019 7:53:06 PM	R64487
Nitrogen, Nitrate (As N)	0.028	0.0061	0.10	J	mg/L	1	11/13/2019 7:53:06 PM	R64487
Sulfate	0.16	0.067	0.50	J	mg/L	1	11/13/2019 7:53:06 PM	R64487
EPA METHOD 200.7: DISSOLVED METALS							Analyst: **bcv**	
Barium	ND	0.00065	0.0020		mg/L	1	12/11/2019 9:31:48 AM	A65095
Beryllium	ND	0.00028	0.0020		mg/L	1	12/11/2019 9:31:48 AM	A65095
Cadmium	ND	0.00055	0.0020		mg/L	1	12/11/2019 9:31:48 AM	A65095
Chromium	ND	0.0015	0.0060		mg/L	1	12/11/2019 9:31:48 AM	A65095
Cobalt	ND	0.0031	0.0060		mg/L	1	12/11/2019 9:31:48 AM	A65095
Iron	ND	0.0087	0.020		mg/L	1	12/11/2019 9:31:48 AM	A65095
Manganese	ND	0.00029	0.0020		mg/L	1	12/11/2019 9:31:48 AM	A65095
Nickel	ND	0.0040	0.010		mg/L	1	12/11/2019 9:31:48 AM	A65095
Silver	ND	0.00094	0.0050		mg/L	1	12/11/2019 9:31:48 AM	A65095
Vanadium	ND	0.0020	0.050		mg/L	1	12/11/2019 9:31:48 AM	A65095
Zinc	0.016	0.0023	0.010		mg/L	1	12/11/2019 9:31:48 AM	A65095
EPA METHOD 200.7: TOTAL METALS							Analyst: **ELS**	
Barium	ND	0.00049	0.0020		mg/L	1	11/27/2019 7:08:51 PM	48856
Beryllium	ND	0.00022	0.0020		mg/L	1	11/27/2019 7:08:51 PM	48856
Cadmium	ND	0.00074	0.0020		mg/L	1	11/27/2019 7:08:51 PM	48856
Chromium	ND	0.0012	0.0060		mg/L	1	11/27/2019 7:08:51 PM	48856
Cobalt	ND	0.0012	0.0060		mg/L	1	11/27/2019 7:08:51 PM	48856
Iron	ND	0.0061	0.020		mg/L	1	11/27/2019 7:08:51 PM	48856
Manganese	0.00031	0.000060	0.0020	J	mg/L	1	11/27/2019 7:08:51 PM	48856
Nickel	0.0028	0.0015	0.010	J	mg/L	1	11/27/2019 7:08:51 PM	48856
Silver	ND	0.0014	0.0050		mg/L	1	11/27/2019 7:08:51 PM	48856
Vanadium	ND	0.00054	0.050		mg/L	1	11/27/2019 7:08:51 PM	48856
Zinc	ND	0.0058	0.010		mg/L	1	11/27/2019 7:08:51 PM	48856
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: EB01
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:30:00 PM
Lab ID: 1911594-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: **ELS**	
Antimony	ND	0.00039	0.0010		mg/L	1	11/14/2019 2:15:01 PM	B64505
Arsenic	ND	0.00010	0.0010		mg/L	1	11/14/2019 2:15:01 PM	B64505
Lead	ND	0.000055	0.00050		mg/L	1	11/14/2019 2:15:01 PM	B64505
Selenium	ND	0.00017	0.0010		mg/L	1	11/14/2019 2:15:01 PM	B64505
200.8 ICPMS METALS:TOTAL							Analyst: **ELS**	
Antimony	ND	0.00016	0.0010		mg/L	1	11/19/2019 10:24:10 A	48856
Arsenic	ND	0.00031	0.0010		mg/L	1	11/19/2019 10:24:10 A	48856
Lead	ND	0.000026	0.00050		mg/L	1	11/19/2019 10:24:10 A	48856
Selenium	ND	0.00048	0.0010		mg/L	1	11/19/2019 10:24:10 A	48856
EPA METHOD 245.1: MERCURY							Analyst: **rde**	
Mercury	ND	0.00012	0.00020		mg/L	1	12/2/2019 5:38:14 PM	49083
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Acetone	3.0	1.2	10	J	µg/L	1	11/15/2019 2:35:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 2:35:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 2:35:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: EB01
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:30:00 PM
Lab ID: 1911594-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 2:35:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 2:35:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 2:35:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 2:35:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	11/15/2019 2:35:00 PM	R64537
Surr: 4-Bromofluorobenzene	99.6	0	70-130		%Rec	1	11/15/2019 2:35:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: EB01
Project: Sanitary Sewer Lagoon
Collection Date: 11/12/2019 12:30:00 PM
Lab ID: 1911594-005
Matrix: GROUNDWA
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Surr: Dibromofluoromethane	99.2	0	70-130		%Rec	1	11/15/2019 2:35:00 PM	R64537
Surr: Toluene-d8	97.5	0	70-130		%Rec	1	11/15/2019 2:35:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: Trip Blank-1
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911594-006
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/18/2019 5:02:05 PM	A64584
Surr: BFB	100	0	65.8-143		%Rec	1	11/18/2019 5:02:05 PM	A64584
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Acetone	ND	1.2	10		µg/L	1	11/15/2019 2:59:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 2:59:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 2:59:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: Trip Blank-1
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911594-006
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 2:59:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 2:59:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 2:59:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 2:59:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	11/15/2019 2:59:00 PM	R64537
Surr: 4-Bromofluorobenzene	98.2	0	70-130		%Rec	1	11/15/2019 2:59:00 PM	R64537
Surr: Dibromofluoromethane	97.8	0	70-130		%Rec	1	11/15/2019 2:59:00 PM	R64537
Surr: Toluene-d8	98.5	0	70-130		%Rec	1	11/15/2019 2:59:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: Trip Blank-2
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911594-007
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.021	0.050		mg/L	1	11/18/2019 5:24:48 PM	A64584
Surr: BFB	96.4	0	65.8-143		%Rec	1	11/18/2019 5:24:48 PM	A64584
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
Benzene	ND	0.17	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Toluene	ND	0.35	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Ethylbenzene	ND	0.13	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Naphthalene	ND	0.28	2.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Acetone	ND	1.2	10		µg/L	1	11/15/2019 3:23:00 PM	R64537
Bromobenzene	ND	0.24	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Bromodichloromethane	ND	0.13	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Bromoform	ND	0.29	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Bromomethane	ND	0.27	3.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
2-Butanone	ND	2.1	10		µg/L	1	11/15/2019 3:23:00 PM	R64537
Carbon disulfide	ND	0.45	10		µg/L	1	11/15/2019 3:23:00 PM	R64537
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Chlorobenzene	ND	0.19	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Chloroethane	ND	0.18	2.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Chloroform	ND	0.12	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Chloromethane	ND	0.32	3.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Dibromochloromethane	ND	0.24	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Dibromomethane	ND	0.21	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Oil
Client Sample ID: Trip Blank-2
Project: Sanitary Sewer Lagoon
Collection Date:
Lab ID: 1911594-007
Matrix: TRIP BLANK
Received Date: 11/13/2019 1:15:00 PM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: **CCM**	
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
2-Hexanone	ND	1.5	10		µg/L	1	11/15/2019 3:23:00 PM	R64537
Isopropylbenzene	ND	0.19	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	11/15/2019 3:23:00 PM	R64537
Methylene Chloride	ND	0.15	3.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
n-Butylbenzene	ND	0.23	3.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
n-Propylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Styrene	ND	0.19	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Vinyl chloride	ND	0.18	1.0		µg/L	1	11/15/2019 3:23:00 PM	R64537
Xylenes, Total	ND	0.45	1.5		µg/L	1	11/15/2019 3:23:00 PM	R64537
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	11/15/2019 3:23:00 PM	R64537
Surr: 4-Bromofluorobenzene	97.9	0	70-130		%Rec	1	11/15/2019 3:23:00 PM	R64537
Surr: Dibromofluoromethane	98.0	0	70-130		%Rec	1	11/15/2019 3:23:00 PM	R64537
Surr: Toluene-d8	100	0	70-130		%Rec	1	11/15/2019 3:23:00 PM	R64537

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

Qualifiers:

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

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D	**Project Name:**	1911594
	ALBUQUERQUE, NM 87109		
Attn:	ANDY FREEMAN		

Project Summary

The samples listed on the following page(s) were received for analysis at Anatek Labs, Inc. The analytical report is attached. All test results reported below comply with and meet current TNI standards, other applicable regulatory standards, and the Anatek Labs, Inc. Quality Assurance Manual, unless otherwise noted in the report.

The results in this report relate only to the samples analyzed. All soil and solid results are reported on a dry-weight basis unless otherwise noted. An estimation of uncertainty is available upon request.

This report shall not be reproduced, except in full, without the written consent of Anatek Labs, Inc.

For questions about this report, please contact Justin Doty at 208-883-2839.

Authorized Signature

Todd Taruscio, Lab Manager

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Project Summary

Sample Summary

Anatek Sample ID	Client Sample ID	Matrix	Collection Date/Time	Received Date/Time
191115040-001	1911594-001I/ SL-1-GW	Water	11/12/2019 8:00 AM	11/15/2019 11:33 AM
191115040-002	1911594-001J/ SL-1-GW	Water	11/12/2019 8:00 AM	11/15/2019 11:33 AM
191115040-003	1911594-002I/ SL-2-GW	Water	11/12/2019 9:25 AM	11/15/2019 11:33 AM
191115040-004	1911594-002J/ SL-2-GW	Water	11/12/2019 9:25 AM	11/15/2019 11:33 AM
191115040-005	1911594-003I/ SL-3-GW	Water	11/12/2019 11:10 AM	11/15/2019 11:33 AM
191115040-006	1911594-003J/ SL-3-GW	Water	11/12/2019 11:10 AM	11/15/2019 11:33 AM
191115040-007	1911594-004I/ SL-4-GW	Water	11/12/2019 12:10 PM	11/15/2019 11:33 AM
191115040-008	1911594-004J/ SL-4-GW	Water	11/12/2019 12:10 PM	11/15/2019 11:33 AM
191115040-009	1911594-005I/ EB01	Water	11/12/2019 12:30 PM	11/15/2019 11:33 AM
191115040-010	1911594-005J/ EB01	Water	11/12/2019 12:30 PM	11/15/2019 11:33 AM

QA/QC Summary

QC Parameter	Yes / No (if No, see Comments below)
1. Sample Holding Time Valid?	Yes
2. Instrument Tunes Valid?	Yes
3. Method Blank(s) Valid?	No
4. Internal Standard Response(s) Valid?	Yes
5. Initial Calibration Curve(s) Valid?	Yes
6. Continuing Calibration(s) Valid?	Yes
7. Surrogate Recoveries Valid?	Yes
8. QC Sample Recoveries Valid?	Yes

Comments:

B1 - Target analyte detected in method blank at or above the method reporting limit

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number 191115040-002 **Sampling Date** 11/12/2019 **Date/Time Received** 11/15/2019 11:33 AM
Client Sample ID 1911594-001J/ SL-1-GW **Sampling Time** 8:00 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.0173	mg/L	0.01	11/21/2019 9:00:00 AM	BKP	EPA 335.4	

Sample Number 191115040-004 **Sampling Date** 11/12/2019 **Date/Time Received** 11/15/2019 11:33 AM
Client Sample ID 1911594-002J/ SL-2-GW **Sampling Time** 9:25 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/21/2019 9:00:00 AM	BKP	EPA 335.4	

Sample Number 191115040-006 **Sampling Date** 11/12/2019 **Date/Time Received** 11/15/2019 11:33 AM
Client Sample ID 1911594-003J/ SL-3-GW **Sampling Time** 11:10 AM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/21/2019 9:00:00 AM	BKP	EPA 335.4	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number 191115040-008 **Sampling Date** 11/12/2019 **Date/Time Received** 11/15/2019 11:33 AM
Client Sample ID 1911594-004J/ SL-4-GW **Sampling Time** 12:10 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/21/2019 9:00:00 AM	BKP	EPA 335.4	

Sample Number 191115040-010 **Sampling Date** 11/12/2019 **Date/Time Received** 11/15/2019 11:33 AM
Client Sample ID 1911594-005J/ EB01 **Sampling Time** 12:30 PM
Matrix Water
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	11/21/2019 9:00:00 AM	BKP	EPA 335.4	

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.528	mg/L	0.5	105.6	90-110	11/20/2019	11/21/2019

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
191112049-007	Cyanide	ND	0.517	mg/L	0.5	103.4	80-120	11/20/2019	11/21/2019

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	0.520	mg/L	0.5	104.0	0.6	0-20	11/20/2019	11/21/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	11/20/2019	11/21/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-001	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-001I/ SL-1-GW	**Sampling Time**	8:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 4:12:00 PM	TGT	EPA 8270D	
1,4-Dioxane	33.0	ug/L	1	12/10/2019 10:50:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 10:50:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-001

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	67.6	39-111
Terphenyl-d14	EPA 8270D	102.0	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-003	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-002I/ SL-2-GW	**Sampling Time**	9:25 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 4:59:00 PM	TGT	EPA 8270D	
1,4-Dioxane	3.89	ug/L	1	12/10/2019 11:13:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 11:13:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-003

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	54.4	39-111
Terphenyl-d14	EPA 8270D	95.2	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-005	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-003I/ SL-3-GW	**Sampling Time**	11:10 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 5:22:00 PM	TGT	EPA 8270D	
1,4-Dioxane	3.81	ug/L	1	12/10/2019 11:36:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 11:36:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-005

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	64.4	39-111
Terphenyl-d14	EPA 8270D	98.0	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-007	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-004I/ SL-4-GW	**Sampling Time**	12:10 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 5:45:00 PM	TGT	EPA 8270D	
1,4-Dioxane	2.68	ug/L	1	12/10/2019 11:59:00 PM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/10/2019 11:59:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-007

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	58.4	39-111
Terphenyl-d14	EPA 8270D	87.2	22-133

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-009	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-005I/ EB01	**Sampling Time**	12:30 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Dibenz[a,h]anthracene	ND	ug/L	0.025	12/10/2019 6:08:00 PM	TGT	EPA 8270D	
1,4-Dioxane	ND	ug/L	1	12/11/2019 12:22:00 AM	TGT	EPA 8270D	
Benzoic acid	ND	ug/L	0.5	12/11/2019 12:22:00 AM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-009

Surrogate Standard	Method	Percent Recovery	Control Limits
1,4-Dioxane-d8	EPA 8270D	62.8	39-111
Terphenyl-d14	EPA 8270D	94.8	22-133

Authorized Signature

Todd Taruscio, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Dibenz[a,h]anthracene	6.35	ug/L	5	127.0	52-140	11/19/2019	12/10/2019
1,4-Dioxane	6.08	ug/L	10	60.8	45-135	11/19/2019	12/10/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Dibenz[a,h]anthracene	5.78	ug/L	5	115.6	9.4	0-20	11/19/2019	12/10/2019
1,4-Dioxane	6.37	ug/L	10	63.7	4.7	0-25	11/19/2019	12/10/2019

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,4-Dioxane	ND	ug/L	0.5	11/19/2019	12/10/2019
Benzoic acid	ND	ug/L	0.5	11/19/2019	12/10/2019
Dibenz[a,h]anthracene	ND	ug/L	0.01	11/19/2019	12/10/2019

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-001	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-001I/ SL-1-GW	**Sampling Time**	8:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
1-Methylnaphthalene	0.55	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	0.55	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-001	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-001I/ SL-1-GW	**Sampling Time**	8:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Acenaphthylene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Aniline	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	0.36	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	J, B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-001	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-001I/ SL-1-GW	**Sampling Time**	8:00 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Naphthalene	0.68	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Nitrobenzene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Phenol	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 6:18:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-001

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	105.6	43-120
2-Fluorobiphenyl	EPA 8270D	103.6	55-127
2-Fluorophenol	EPA 8270D	90.8	41-119
Nitrobenzene-d5	EPA 8270D	80.8	55-120
Phenol-d5	EPA 8270D	91.2	52-115
Terphenyl-d14	EPA 8270D	74.4	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-003	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-002I/ SL-2-GW	**Sampling Time**	9:25 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	0.68	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-003	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/201 11:33 AM
Client Sample ID	1911594-002I/ SL-2-GW	**Sampling Time**	9:25 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Naphthalene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-003	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-002I/ SL-2-GW	**Sampling Time**	9:25 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Phenol	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 6:46:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-003

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	93.8	43-120
2-Fluorobiphenyl	EPA 8270D	101.6	55-127
2-Fluorophenol	EPA 8270D	76.0	41-119
Nitrobenzene-d5	EPA 8270D	80.0	55-120
Phenol-d5	EPA 8270D	75.8	52-115
Terphenyl-d14	EPA 8270D	73.2	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-005	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-003I/ SL-3-GW	**Sampling Time**	11:10 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	0.45	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	J
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-005	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/2011 1:33 AM
Client Sample ID	1911594-003I/ SL-3-GW	**Sampling Time**	11:10 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Naphthalene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-005	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-003I/ SL-3-GW	**Sampling Time**	11:10 AM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Phenol	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 7:14:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-005

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	99.8	43-120
2-Fluorobiphenyl	EPA 8270D	106.4	55-127
2-Fluorophenol	EPA 8270D	80.0	41-119
Nitrobenzene-d5	EPA 8270D	85.2	55-120
Phenol-d5	EPA 8270D	78.0	52-115
Terphenyl-d14	EPA 8270D	72.0	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-007	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-004I/ SL-4-GW	**Sampling Time**	12:10 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-007	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-004I/ SL-4-GW	**Sampling Time**	12:10 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Naphthalene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-007	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-004I/ SL-4-GW	**Sampling Time**	12:10 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Phenol	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 7:41:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-007

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	95.8	43-120
2-Fluorobiphenyl	EPA 8270D	99.6	55-127
2-Fluorophenol	EPA 8270D	78.8	41-119
Nitrobenzene-d5	EPA 8270D	76.4	55-120
Phenol-d5	EPA 8270D	80.0	52-115
Terphenyl-d14	EPA 8270D	80.8	22-135

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-009	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-005I/ EB01	**Sampling Time**	12:30 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
1,2,4-Trichlorobenzene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
1,2-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
1,3-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
1,4-Dichlorobenzene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
1-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2,4,5-Trichlorophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2,4,6-Trichlorophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2,4-Dichlorophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2,4-Dimethylphenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2,4-Dinitrophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2,4-Dinitrotoluene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2,6-Dinitrotoluene	ND	ug/L	0.2	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2-Chloronaphthalene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2-Chlorophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2-Methylnaphthalene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2-Methylphenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2-Nitroaniline	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
2-Nitrophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
3,3'-Dichlorobenzidine	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
3+4-Methylphenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
3-Nitroaniline	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
4-Bromophenyl-phenylether	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
4-Chloro-3-methylphenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
4-Chlorophenyl-phenylether	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
4-Nitroaniline	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
4-Nitrophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Acenaphthene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Acenaphthylene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Sample Number	191115040-009	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-005I/ EB01	**Sampling Time**	12:30 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Aniline	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Anthracene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Benzo(ghi)perylene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Benzo[a]anthracene	ND	ug/L	0.1	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Benzo[a]pyrene	ND	ug/L	0.1	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Benzo[b]fluoranthene	ND	ug/L	0.1	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Benzo[k]fluoranthene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Benzyl alcohol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
bis(2-Ethylhexyl)phthalate	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	B1
Butylbenzylphthalate	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Carbazole	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Chrysene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Dibenz[a,h]anthracene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Dibenzofuran	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Diethylphthalate	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Dimethylphthalate	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Di-n-butylphthalate	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Di-n-octylphthalate	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Fluoranthene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Fluorene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Hexachlorobenzene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Hexachlorobutadiene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Hexachlorocyclopentadiene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Hexachloroethane	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.2	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Isophorone	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Naphthalene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	191115040
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1911594
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	191115040-009	**Sampling Date**	11/12/2019	**Date/Time Received**	11/15/20111:33 AM
Client Sample ID	1911594-005I/ EB01	**Sampling Time**	12:30 PM	**Extraction Date**	11/19/2019
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Nitrobenzene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
n-Nitrosodiphenylamine	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Pentachlorophenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Phenanthrene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Phenol	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Pyrene	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	
Pyridine	ND	ug/L	0.5	12/13/2019 8:09:00 PM	TGT	EPA 8270D	

Surrogate Data

Sample Number 191115040-009

Surrogate Standard	Method	Percent Recovery	Control Limits
2,4,6-Tribromophenol	EPA 8270D	76.8	43-120
2-Fluorobiphenyl	EPA 8270D	113.6	55-127
2-Fluorophenol	EPA 8270D	73.6	41-119
Nitrobenzene-d5	EPA 8270D	82.4	55-120
Phenol-d5	EPA 8270D	70.6	52-115
Terphenyl-d14	EPA 8270D	77.6	22-135

Authorized Signature

Todd Taruscio, Lab Manager

B1	Target analyte detected in method blank at or above the method reporting limit
J	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
MCL	EPA's Maximum Contaminant Level
ND	Not Detected
PQL	Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Pyrene	4.19	ug/L	5	83.8	45-139	11/19/2019	12/13/2019
Phenol	3.75	ug/L	5	75.0	45-134	11/19/2019	12/13/2019
Pentachlorophenol	3.58	ug/L	5	71.6	22-138	11/19/2019	12/13/2019
Naphthalene	3.78	ug/L	5	75.6	53-120	11/19/2019	12/13/2019
bis(2-Ethylhexyl)phthalate	4.36	ug/L	5	87.2	51-149	11/19/2019	12/13/2019
Benzo[a]pyrene	4.87	ug/L	5	97.4	63-120	11/19/2019	12/13/2019
Acenaphthene	4.17	ug/L	5	83.4	45-129	11/19/2019	12/13/2019
4-Nitrophenol	3.38	ug/L	5	67.6	19-141	11/19/2019	12/13/2019
4-Chloro-3-methylphenol	3.88	ug/L	5	77.6	42-139	11/19/2019	12/13/2019
2-Methylnaphthalene	3.62	ug/L	5	72.4	56-128	11/19/2019	12/13/2019
2-Chlorophenol	3.68	ug/L	5	73.6	50-131	11/19/2019	12/13/2019
2,4-Dinitrotoluene	4.43	ug/L	5	88.6	42-143	11/19/2019	12/13/2019
1-Methylnaphthalene	3.66	ug/L	5	73.2	57-124	11/19/2019	12/13/2019
1,4-Dichlorobenzene	2.92	ug/L	5	58.4	28-108	11/19/2019	12/13/2019
1,2,4-Trichlorobenzene	3.16	ug/L	5	63.2	33-109	11/19/2019	12/13/2019

Lab Control Sample Duplicate

Parameter	LCSD Result	Units	LCSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Pyrene	4.27	ug/L	5	85.4	1.9	0-20	11/19/2019	12/13/2019
Phenol	3.98	ug/L	5	79.6	6.0	0-25	11/19/2019	12/13/2019
Pentachlorophenol	3.86	ug/L	5	77.2	7.5	0-39	11/19/2019	12/13/2019
Naphthalene	3.89	ug/L	5	77.8	2.9	0-20	11/19/2019	12/13/2019
bis(2-Ethylhexyl)phthalate	4.54	ug/L	5	90.8	4.0	0-43	11/19/2019	12/13/2019
Benzo[a]pyrene	4.82	ug/L	5	96.4	1.0	0-20	11/19/2019	12/13/2019
Acenaphthene	4.20	ug/L	5	84.0	0.7	0-22	11/19/2019	12/13/2019
4-Nitrophenol	4.13	ug/L	5	82.6	20.0	0-51	11/19/2019	12/13/2019
4-Chloro-3-methylphenol	4.06	ug/L	5	81.2	4.5	0-20	11/19/2019	12/13/2019
2-Methylnaphthalene	3.73	ug/L	5	74.6	3.0	0-24	11/19/2019	12/13/2019
2-Chlorophenol	3.92	ug/L	5	78.4	6.3	0-24	11/19/2019	12/13/2019
2,4-Dinitrotoluene	4.86	ug/L	5	97.2	9.3	0-20	11/19/2019	12/13/2019
1-Methylnaphthalene	3.75	ug/L	5	75.0	2.4	0-20	11/19/2019	12/13/2019
1,4-Dichlorobenzene	3.15	ug/L	5	63.0	7.6	0-31	11/19/2019	12/13/2019
1,2,4-Trichlorobenzene	3.36	ug/L	5	67.2	6.1	0-33	11/19/2019	12/13/2019

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
1,2,4-Trichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1,2-Dichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1,3-Dichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1,4-Dichlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
1-Methylnaphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4,5-Trichlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4,6-Trichlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dichlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dimethylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dinitrophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2,4-Dinitrotoluene	ND	ug/L	0.5	11/19/2019	12/13/2019
2,6-Dinitrotoluene	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Chloronaphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Chlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Methylnaphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Nitroaniline	ND	ug/L	0.5	11/19/2019	12/13/2019
2-Nitrophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
3,3'-Dichlorobenzidine	ND	ug/L	0.5	11/19/2019	12/13/2019
3+4-Methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
3-Nitroaniline	ND	ug/L	0.5	11/19/2019	12/13/2019
4,6-Dinitro-2-methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Bromophenyl-phenylether	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Chloro-3-methylphenol	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Chlorophenyl-phenylether	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Nitroaniline	ND	ug/L	0.5	11/19/2019	12/13/2019
4-Nitrophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
Acenaphthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Acenaphthylene	ND	ug/L	0.5	11/19/2019	12/13/2019
Aniline	ND	ug/L	0.5	11/19/2019	12/13/2019
Anthracene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo(ghi)perylene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[a]anthracene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[a]pyrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[b]fluoranthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzo[k]fluoranthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Benzyl alcohol	ND	ug/L	0.5	11/19/2019	12/13/2019

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 191115040
Project Name: 1911594

Analytical Results Report

Quality Control Data

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
bis(2-Chloroethoxy)methane	ND	ug/L	0.5	11/19/2019	12/13/2019
bis(2-chloroisopropyl)ether	ND	ug/L	0.5	11/19/2019	12/13/2019
bis(2-Ethylhexyl)phthalate	0.50	ug/L	0.5	11/19/2019	12/13/2019
Butylbenzylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Carbazole	ND	ug/L	0.5	11/19/2019	12/13/2019
Chrysene	ND	ug/L	0.5	11/19/2019	12/13/2019
Dibenz[a,h]anthracene	ND	ug/L	0.5	11/19/2019	12/13/2019
Dibenzofuran	ND	ug/L	0.5	11/19/2019	12/13/2019
Diethylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Dimethylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Di-n-butylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Di-n-octylphthalate	ND	ug/L	0.5	11/19/2019	12/13/2019
Fluoranthene	ND	ug/L	0.5	11/19/2019	12/13/2019
Fluorene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachlorobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachlorobutadiene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachlorocyclopentadiene	ND	ug/L	0.5	11/19/2019	12/13/2019
Hexachloroethane	ND	ug/L	0.5	11/19/2019	12/13/2019
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Isophorone	ND	ug/L	0.5	11/19/2019	12/13/2019
Naphthalene	ND	ug/L	0.5	11/19/2019	12/13/2019
Nitrobenzene	ND	ug/L	0.5	11/19/2019	12/13/2019
n-Nitrosodiphenylamine	ND	ug/L	0.5	11/19/2019	12/13/2019
Pentachlorophenol	ND	ug/L	0.5	11/19/2019	12/13/2019
Phenanthrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Phenol	ND	ug/L	0.5	11/19/2019	12/13/2019
Pyrene	ND	ug/L	0.5	11/19/2019	12/13/2019
Pyridine	ND	ug/L	0.5	11/19/2019	12/13/2019

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013;NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 22, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1161171

Samples Received: 11/15/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 5

Sr: Sample Results 6

1911594-001G SL-1-GW L1161171-01 6

1911594-001H SL-1-GW L1161171-02 7

1911594-002G SL-2-GW L1161171-03 8

1911594-002H SL-2-GW L1161171-04 9

1911594-003G SL-3-GW L1161171-05 10

1911594-003H SL-3-GW L1161171-06 11

1911594-004G SL-4-GW L1161171-07 12

1911594-004H SL-4-GW L1161171-08 13

1911594-005G EB01 L1161171-09 14

1911594-005H EB01 L1161171-10 15

Qc: Quality Control Summary 16

Wet Chemistry by Method 410.4 16

Wet Chemistry by Method 7199 17

Gl: Glossary of Terms 18

Al: Accreditations & Locations 19

Sc: Sample Chain of Custody 20



1911594-001G SL-1-GW L1161171-01 GW

Collected by | Collected date/time 11/12/19 08:00 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383256	1	11/20/19 13:00	11/20/19 16:14	BAM	Mt. Juliet, TN

1911594-001H SL-1-GW L1161171-02 GW

Collected by | Collected date/time 11/12/19 08:00 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 04:57	11/19/19 04:57	GB	Mt. Juliet, TN

1911594-002G SL-2-GW L1161171-03 GW

Collected by | Collected date/time 11/12/19 09:25 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383256	1	11/20/19 13:00	11/20/19 16:15	BAM	Mt. Juliet, TN

1911594-002H SL-2-GW L1161171-04 GW

Collected by | Collected date/time 11/12/19 09:25 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 05:05	11/19/19 05:05	GB	Mt. Juliet, TN

1911594-003G SL-3-GW L1161171-05 GW

Collected by | Collected date/time 11/12/19 11:10 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383256	1	11/20/19 13:00	11/20/19 16:15	BAM	Mt. Juliet, TN

1911594-003H SL-3-GW L1161171-06 GW

Collected by | Collected date/time 11/12/19 11:10 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 05:12	11/19/19 05:12	GB	Mt. Juliet, TN

1911594-004G SL-4-GW L1161171-07 GW

Collected by | Collected date/time 11/12/19 12:10 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383256	1	11/20/19 13:00	11/20/19 16:15	BAM	Mt. Juliet, TN

1911594-004H SL-4-GW L1161171-08 GW

Collected by | Collected date/time 11/12/19 12:10 | Received date/time 11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 05:20	11/19/19 05:20	GB	Mt. Juliet, TN

1911594-005G EB01 L1161171-09 GW

Collected by	Collected date/time	Received date/time
	11/12/19 12:30	11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1383256	1	11/20/19 13:00	11/20/19 16:16	BAM	Mt. Juliet, TN

1911594-005H EB01 L1161171-10 GW

Collected by	Collected date/time	Received date/time
	11/12/19 12:30	11/15/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 7199	WG1382787	1	11/19/19 05:27	11/19/19 05:27	GB	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	162		3.00	10.0	1	11/20/2019 16:14	WG1383256

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 04:57	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	36.9		3.00	10.0	1	11/20/2019 16:15	WG1383256

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 05:05	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	43.6		3.00	10.0	1	11/20/2019 16:15	WG1383256

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 05:12	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	50.9		3.00	10.0	1	11/20/2019 16:15	WG1383256

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 05:20	WG1382787

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	U		3.00	10.0	1	11/20/2019 16:16	WG1383256

Wet Chemistry by Method 7199

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
Hexavalent Chromium	U		0.000150	0.000500	1	11/19/2019 05:27	WG1382787

Method Blank (MB)

(MB) R3474228-1 11/20/19 16:12

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U		3.00	10.0

L1161113-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1161113-04 11/20/19 16:13 • (DUP) R3474228-3 11/20/19 16:13

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	69.5	68.7	1	1.13		20

L1161190-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1161190-01 11/20/19 16:16 • (DUP) R3474228-6 11/20/19 16:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	237	237	1	0.0927		20

Laboratory Control Sample (LCS)

(LCS) R3474228-2 11/20/19 16:12

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
COD	222	218	98.2	90.0-110	

L1161171-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1161171-03 11/20/19 16:15 • (MS) R3474228-4 11/20/19 16:15 • (MSD) R3474228-5 11/20/19 16:15

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 %
COD	400	36.9	444	445	102	102	1	80.0-120			0.297	20

Method Blank (MB)

(MB) R3473656-1 11/19/19 02:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hexavalent Chromium	U		0.000150	0.000500

L1161143-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1161143-01 11/19/19 03:14 • (DUP) R3473656-3 11/19/19 03:21

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.000299	0.000302	1	0.732	J	20

L1161213-12 Original Sample (OS) • Duplicate (DUP)

(OS) L1161213-12 11/19/19 06:33 • (DUP) R3473656-7 11/19/19 06:41

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.000	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3473656-2 11/19/19 03:07

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hexavalent Chromium	0.00200	0.00201	101	90.0-110	

L1161143-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1161143-03 11/19/19 03:36 • (MS) R3473656-4 11/19/19 03:44 • (MSD) R3473656-5 11/19/19 03:51

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 %
Hexavalent Chromium	0.0500	0.000284	0.0504	0.0508	100	101	1	90.0-110			0.799	20

L1161213-10 Original Sample (OS) • Matrix Spike (MS)

(OS) L1161213-10 11/19/19 06:19 • (MS) R3473656-6 11/19/19 06:26

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	0.0500	U	0.0499	99.9	1	90.0-110	

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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.

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

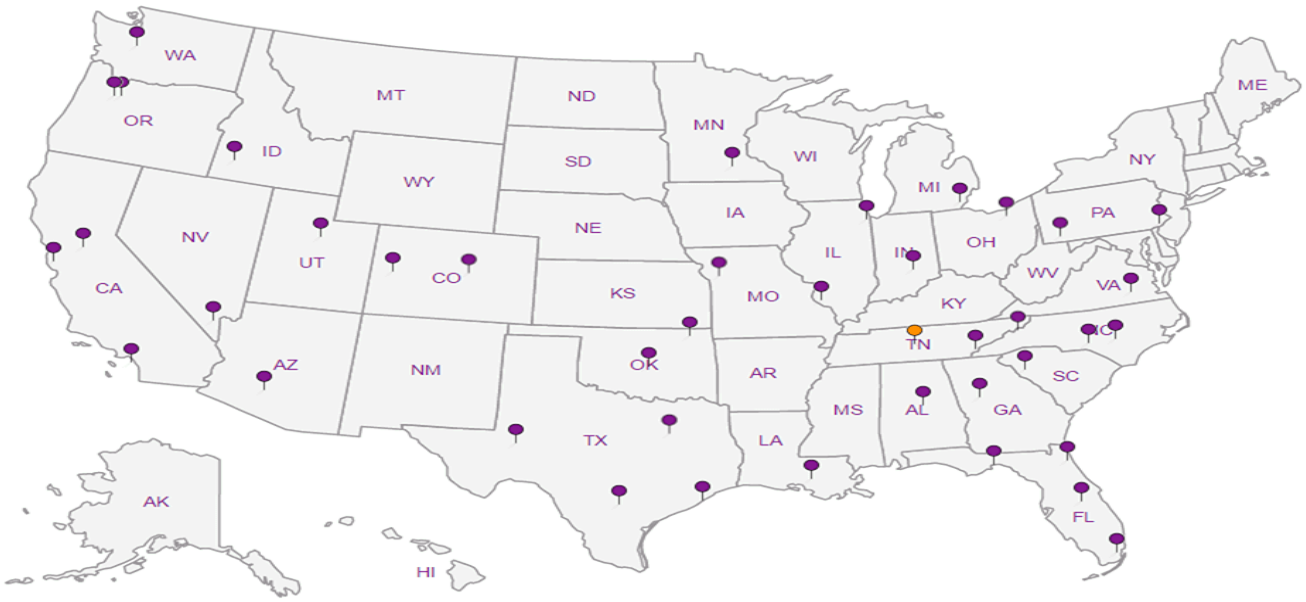
Third Party Federal Accreditations

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.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRATOR:	**ESC PACE**	COMPANY: **ESC PACE**	PHONE: **(800) 767-5859**	FAX: **(615) 758-5859**	
ADDRESS:	**12065 Lebanon Rd**		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	**Mt. Juliet, TN 37122**				

L1161171

C107

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS		
1	1911594-001G	SL-1-GW	500HDPEH2SO4	Groundwater	11/12/2019 8:00:00 AM	1	COD**J and MDL**Lv 4	<2	-01
2	1911594-001H	SL-1-GW	120mL	Groundwater	11/12/2019 8:00:00 AM	1	Cr6**J and MDL**Lv 4		-02
3	1911594-002G	SL-2-GW	500HDPEH2SO4	Groundwater	11/12/2019 9:25:00 AM	1	COD**J and MDL**Lv 4	<2	-03
4	1911594-002H	SL-2-GW	120mL	Groundwater	11/12/2019 9:25:00 AM	1	Cr6**J and MDL**Lv 4		-04
5	1911594-003G	SL-3-GW	500HDPEH2SO4	Groundwater	11/12/2019 11:10:00 AM	1	COD**J and MDL**Lv 4	<2	-05
6	1911594-003H	SL-3-GW	120mL	Groundwater	11/12/2019 11:10:00 AM	1	Cr6**J and MDL**Lv 4		-06
7	1911594-004G	SL-4-GW	500HDPEH2SO4	Groundwater	11/12/2019 12:10:00 PM	1	COD**J and MDL**Lv 4	<2	-07
8	1911594-004H	SL-4-GW	120mL	Groundwater	11/12/2019 12:10:00 PM	1	Cr6**J and MDL**Lv 4		-08
9	1911594-005G	EB01	500HDPEH2SO4	Groundwater	11/12/2019 12:30:00 PM	1	COD**J and MDL**Lv 4	<2	-09
10	1911594-005H	EB01	120mL	Groundwater	11/12/2019 12:30:00 PM	1	Cr6**J and MDL**Lv 4		-10

CCCSI

RAD SCREEN: <0.5 mR/hr

SPECIAL INSTRUCTIONS / COMMENTS:

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

4510 1669 1697 NO TB 10 Total

Relinquished By:	Date: **11/13/2019**	Time: **2:24 PM**	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	11-15-19	8:30

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

REPORT TRANSMITTAL DESIRED:

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

FOR LAB USE ONLY

Temp of samples C0.8+2.0=2.8C Attempt to Cool ? _____

Comments: _____

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	L116171	
Cooler Received/Opened On: 11 / 15/19 Temperature:	0.6	
Received By: MICHAEL PAPPAS		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233517** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID: **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233518** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0022	0.0020	0.002000	0	108	50	150			
Beryllium	0.0022	0.0020	0.002000	0	112	50	150			
Cadmium	0.0024	0.0020	0.002000	0	120	50	150			
Chromium	0.0059	0.0060	0.006000	0	98.2	50	150			J
Cobalt	0.0063	0.0060	0.006000	0	105	50	150			
Iron	0.019	0.020	0.02000	0	95.8	50	150			J
Manganese	0.0021	0.0020	0.002000	0	107	50	150			
Nickel	0.0033	0.010	0.005000	0	65.3	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.8	50	150			J
Vanadium	0.0098	0.050	0.01000	0	97.5	50	150			J
Zinc	0.011	0.010	0.01000	0	110	50	150			

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	101	85	115			
Beryllium	0.51	0.0020	0.5000	0	102	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.50	0.0060	0.5000	0	100	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.4	85	115			
Iron	0.50	0.020	0.5000	0	100	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**

28-Jan-20

Client: Marathon Oil

Project: Sanitary Sewer Lagoon

Sample ID: **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233519** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.49	0.0020	0.5000	0	98.2	85	115			
Nickel	0.49	0.010	0.5000	0	99.0	85	115			
Silver	0.10	0.0050	0.1000	0	104	85	115			
Vanadium	0.51	0.050	0.5000	0	102	85	115			
Zinc	0.50	0.010	0.5000	0	99.9	85	115			

Sample ID: **1911594-005EMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **EB01**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233562** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	101	70	130			
Beryllium	0.51	0.0020	0.5000	0	102	70	130			
Cadmium	0.50	0.0020	0.5000	0	101	70	130			
Chromium	0.50	0.0060	0.5000	0	99.6	70	130			
Cobalt	0.48	0.0060	0.5000	0	96.4	70	130			
Iron	0.50	0.020	0.5000	0	99.9	70	130			
Manganese	0.49	0.0020	0.5000	0	97.8	70	130			
Nickel	0.50	0.010	0.5000	0	99.0	70	130			
Silver	0.10	0.0050	0.1000	0	104	70	130			
Vanadium	0.50	0.050	0.5000	0	101	70	130			
Zinc	0.52	0.010	0.5000	0.01550	101	70	130			

Sample ID: **1911594-005EMSD**	SampType: **MSD**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **EB01**	Batch ID: **A65095**	RunNo: **65095**
Prep Date:	Analysis Date: **12/11/2019**	SeqNo: **2233563** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.7	70	130	3.27	20	
Beryllium	0.50	0.0020	0.5000	0	99.4	70	130	3.01	20	
Cadmium	0.49	0.0020	0.5000	0	97.2	70	130	3.30	20	
Chromium	0.48	0.0060	0.5000	0	96.2	70	130	3.47	20	
Cobalt	0.47	0.0060	0.5000	0	93.3	70	130	3.28	20	
Iron	0.48	0.020	0.5000	0	96.1	70	130	3.95	20	
Manganese	0.47	0.0020	0.5000	0	94.6	70	130	3.27	20	
Nickel	0.48	0.010	0.5000	0	95.5	70	130	3.65	20	
Silver	0.10	0.0050	0.1000	0	101	70	130	3.54	20	
Vanadium	0.49	0.050	0.5000	0	97.5	70	130	3.34	20	
Zinc	0.51	0.010	0.5000	0.01550	98.8	70	130	2.45	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48856** SampType: **MBLK** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **PBW** Batch ID: **48856** RunNo: **64641**
Prep Date: **11/18/2019** Analysis Date: **11/20/2019** SeqNo: **2214259** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Iron	0.018	0.020								J
Manganese	0.000070	0.0020								J
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID: **LLLCS-48856** SampType: **LCSLL** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC** Batch ID: **48856** RunNo: **64641**
Prep Date: **11/18/2019** Analysis Date: **11/20/2019** SeqNo: **2214260** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0022	0.0020	0.002000	0	110	50	150			
Beryllium	0.0021	0.0020	0.002000	0	103	50	150			
Cadmium	0.0017	0.0020	0.002000	0	84.4	50	150			J
Chromium	0.0067	0.0060	0.006000	0	111	50	150			
Cobalt	0.0061	0.0060	0.006000	0	101	50	150			
Iron	0.032	0.020	0.02000	0	162	50	150			S
Manganese	0.0022	0.0020	0.002000	0	110	50	150			
Nickel	0.0057	0.010	0.005000	0	113	50	150			J
Silver	0.0053	0.0050	0.005000	0	106	50	150			
Vanadium	0.011	0.050	0.01000	0	110	50	150			J
Zinc	0.011	0.010	0.01000	0	106	50	150			

Sample ID: **LCS-48856** SampType: **LCS** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW** Batch ID: **48856** RunNo: **64641**
Prep Date: **11/18/2019** Analysis Date: **11/20/2019** SeqNo: **2214261** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	100	85	115			
Beryllium	0.50	0.0020	0.5000	0	101	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	98.1	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.9	85	115			
Iron	0.49	0.020	0.5000	0	97.8	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**

28-Jan-20

Client: Marathon Oil

Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48856**	SampType: **LCS**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW**	Batch ID: **48856**	RunNo: **64641**
Prep Date: **11/18/2019**	Analysis Date: **11/20/2019**	SeqNo: **2214261** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.49	0.0020	0.5000	0	98.0	85	115			
Nickel	0.49	0.010	0.5000	0	98.9	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			
Vanadium	0.51	0.050	0.5000	0	101	85	115			
Zinc	0.49	0.010	0.5000	0	97.1	85	115			

Sample ID: **MB-48856**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **PBW**	Batch ID: **48856**	RunNo: **64680**
Prep Date: **11/18/2019**	Analysis Date: **11/21/2019**	SeqNo: **2215984** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID: **LLLCS-48856**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **BatchQC**	Batch ID: **48856**	RunNo: **64680**
Prep Date: **11/18/2019**	Analysis Date: **11/21/2019**	SeqNo: **2215986** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.019	0.020	0.02000	0	92.6	50	150			J

Sample ID: **LCS-48856**	SampType: **LCS**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **LCSW**	Batch ID: **48856**	RunNo: **64680**
Prep Date: **11/18/2019**	Analysis Date: **11/21/2019**	SeqNo: **2215988** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.46	0.020	0.5000	0	91.0	85	115			

Sample ID: **1911594-005FMS**	SampType: **MS**	TestCode: **EPA Method 200.7: Total Metals**
Client ID: **EB01**	Batch ID: **48856**	RunNo: **64829**
Prep Date: **11/18/2019**	Analysis Date: **11/27/2019**	SeqNo: **2222340** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.47	0.0020	0.5000	0	94.9	70	130			
Beryllium	0.48	0.0020	0.5000	0	96.6	70	130			
Cadmium	0.47	0.0020	0.5000	0	94.4	70	130			
Chromium	0.44	0.0060	0.5000	0	87.6	70	130			
Cobalt	0.46	0.0060	0.5000	0	91.2	70	130			
Iron	0.49	0.020	0.5000	0	98.7	70	130			
Manganese	0.47	0.0020	0.5000	0.0003067	93.9	70	130			
Nickel	0.46	0.010	0.5000	0.002813	91.3	70	130			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **1911594-005FMS** SampType: **MS** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **EB01** Batch ID: **48856** RunNo: **64829**
Prep Date: **11/18/2019** Analysis Date: **11/27/2019** SeqNo: **2222340** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.098	0.0050	0.1000	0	98.2	70	130			
Vanadium	0.49	0.050	0.5000	0	97.0	70	130			

Sample ID: **1911594-005FMSD** SampType: **MSD** TestCode: **EPA Method 200.7: Total Metals**
Client ID: **EB01** Batch ID: **48856** RunNo: **64829**
Prep Date: **11/18/2019** Analysis Date: **11/27/2019** SeqNo: **2222341** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	95.1	70	130	0.182	20	
Beryllium	0.49	0.0020	0.5000	0	97.0	70	130	0.449	20	
Cadmium	0.47	0.0020	0.5000	0	94.5	70	130	0.104	20	
Chromium	0.44	0.0060	0.5000	0	88.0	70	130	0.517	20	
Cobalt	0.45	0.0060	0.5000	0	90.8	70	130	0.404	20	
Iron	0.49	0.020	0.5000	0	97.5	70	130	1.16	20	
Manganese	0.47	0.0020	0.5000	0.0003067	94.4	70	130	0.512	20	
Nickel	0.46	0.010	0.5000	0.002813	91.2	70	130	0.108	20	
Silver	0.10	0.0050	0.1000	0	100	70	130	2.06	20	
Vanadium	0.49	0.050	0.5000	0	97.0	70	130	0.0380	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2208406** 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								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID: **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2208407** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00078	0.0010	0.001000	0	78.4	50	150			J
Arsenic	0.0011	0.0010	0.001000	0	106	50	150			
Lead	0.00050	0.00050	0.0005000	0	99.8	50	150			J
Selenium	0.0012	0.0010	0.001000	0	118	50	150			

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2208408** 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	96.5	85	115			
Arsenic	0.025	0.0010	0.02500	0	99.1	85	115			
Lead	0.012	0.00050	0.01250	0	98.3	85	115			
Selenium	0.023	0.0010	0.02500	0	93.3	85	115			

Sample ID: **1911594-005EMS**	SampType: **MS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **EB01**	Batch ID: **B64505**	RunNo: **64505**
Prep Date:	Analysis Date: **11/14/2019**	SeqNo: **2209139** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.025	0.0010	0.02500	0	102	70	130			
Arsenic	0.025	0.0010	0.02500	0	101	70	130			
Lead	0.012	0.00050	0.01250	0	99.3	70	130			
Selenium	0.024	0.0010	0.02500	0	97.9	70	130			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64608**	RunNo: **64608**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2212780** 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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64608**	RunNo: **64608**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2212780** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID: **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A64608**	RunNo: **64608**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2212782** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0011	0.0010	0.001000	0	105	50	150			
Lead	0.00051	0.00050	0.0005000	0	101	50	150			
Selenium	0.00090	0.0010	0.001000	0	90.0	50	150			J

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A64608**	RunNo: **64608**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2212784** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.024	0.0010	0.02500	0	94.3	85	115			
Lead	0.012	0.00050	0.01250	0	96.7	85	115			
Selenium	0.023	0.0010	0.02500	0	91.9	85	115			

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A64635**	RunNo: **64635**
Prep Date:	Analysis Date: **11/20/2019**	SeqNo: **2213967** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A64635**	RunNo: **64635**
Prep Date:	Analysis Date: **11/20/2019**	SeqNo: **2213971** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.022	0.0010	0.02500	0	86.1	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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A64635**	RunNo: **64635**
Prep Date:	Analysis Date: **11/20/2019**	SeqNo: **2213973** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00065	0.0010	0.001000	0	65.2	50	150			J

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **MB-48856**	SampType: **MBLK**	TestCode: **200.8 ICPMS Metals:Total**
Client ID: **PBW**	Batch ID: **48856**	RunNo: **64595**
Prep Date: **11/18/2019**	Analysis Date: **11/19/2019**	SeqNo: **2212393** 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								
Lead	ND	0.00050								
Selenium	ND	0.0010								

Sample ID: **MSLLLCS-48856**	SampType: **LCSLL**	TestCode: **200.8 ICPMS Metals:Total**
Client ID: **BatchQC**	Batch ID: **48856**	RunNo: **64595**
Prep Date: **11/18/2019**	Analysis Date: **11/19/2019**	SeqNo: **2212395** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00082	0.0010	0.001000	0	81.7	50	150			J
Arsenic	0.00094	0.0010	0.001000	0	94.4	50	150			J
Lead	0.00051	0.00050	0.0005000	0	101	50	150			
Selenium	0.0010	0.0010	0.001000	0	103	50	150			

Sample ID: **MSLCS-48856**	SampType: **LCS**	TestCode: **200.8 ICPMS Metals:Total**
Client ID: **LCSW**	Batch ID: **48856**	RunNo: **64595**
Prep Date: **11/18/2019**	Analysis Date: **11/19/2019**	SeqNo: **2212397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.028	0.0010	0.02500	0	112	85	115			
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Selenium	0.026	0.0010	0.02500	0	103	85	115			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **MB-49083** SampType: **MBLK** TestCode: **EPA Method 245.1: Mercury**
Client ID: **PBW** Batch ID: **49083** RunNo: **64889**
Prep Date: **12/2/2019** Analysis Date: **12/2/2019** SeqNo: **2224861** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: **LCS-49083** SampType: **LCS** TestCode: **EPA Method 245.1: Mercury**
Client ID: **LCSW** Batch ID: **49083** RunNo: **64889**
Prep Date: **12/2/2019** Analysis Date: **12/2/2019** SeqNo: **2224862** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.0	80	120			

Sample ID: **1911594-001FMS** SampType: **MS** TestCode: **EPA Method 245.1: Mercury**
Client ID: **SL-1-GW** Batch ID: **49083** RunNo: **64889**
Prep Date: **12/2/2019** Analysis Date: **12/2/2019** SeqNo: **2224864** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0045	0.00020	0.005000	0	89.1	75	125			

Sample ID: **1911594-001FMSD** SampType: **MSD** TestCode: **EPA Method 245.1: Mercury**
Client ID: **SL-1-GW** Batch ID: **49083** RunNo: **64889**
Prep Date: **12/2/2019** Analysis Date: **12/2/2019** SeqNo: **2224865** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	91.3	75	125	2.38	20	

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64487**	RunNo: **64487**
Prep Date:	Analysis Date: **11/13/2019**	SeqNo: **2207574** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64487**	RunNo: **64487**
Prep Date:	Analysis Date: **11/13/2019**	SeqNo: **2207575** 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			
Chloride	4.8	0.50	5.000	0	96.2	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			
Sulfate	9.7	0.50	10.00	0	97.2	90	110			

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64556**	RunNo: **64556**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210506** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64556**	RunNo: **64556**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210507** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **LCS-48838** SampType: **LCS** TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW** Batch ID: **48838** RunNo: **64572**
Prep Date: **11/18/2019** Analysis Date: **11/18/2019** SeqNo: **2211877** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.2	0.40	2.500	0	88.9	82	138			
Surr: DNOP	0.20		0.2500		81.3	81.5	152			S

Sample ID: **MB-48838** SampType: **MBLK** TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW** Batch ID: **48838** RunNo: **64572**
Prep Date: **11/18/2019** Analysis Date: **11/18/2019** SeqNo: **2211878** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.45		0.5000		90.9	81.5	152			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**

28-Jan-20

Client: Marathon Oil

Project: Sanitary Sewer Lagoon

Sample ID: **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **A64584**	RunNo: **64584**
Prep Date:	Analysis Date: **11/18/2019**	SeqNo: **2211912** 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	20		20.00		101	65.8	143			

Sample ID: **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **A64584**	RunNo: **64584**
Prep Date:	Analysis Date: **11/18/2019**	SeqNo: **2211913** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	106	73.6	119			
Surr: BFB	22		20.00		111	65.8	143			

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2209848** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.3	70	130			
Toluene	19	1.0	20.00	0	93.1	70	130			
Chlorobenzene	19	1.0	20.00	0	94.0	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.9	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.6	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.1	70	130			
Surr: Toluene-d8	9.6		10.00		96.0	70	130			

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210298** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT
Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**
28-Jan-20

Client: Marathon Oil
Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210298** Units: **µg/L**

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911594**

28-Jan-20

Client: Marathon Oil

Project: Sanitary Sewer Lagoon

Sample ID: **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210298** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.7	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.7		10.00		96.8	70	130			

Sample ID: **1911594-001bms**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **SL-1-GW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210301** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	230	1.0	20.00	204.4	152	70	130			ES
Toluene	19	1.0	20.00	0	96.2	70	130			
Chlorobenzene	19	1.0	20.00	0	97.0	70	130			
1,1-Dichloroethene	45	1.0	20.00	24.53	103	70	130			
Trichloroethene (TCE)	23	1.0	20.00	3.844	93.4	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.7	70	130			
Surr: Toluene-d8	9.8		10.00		98.2	70	130			

Sample ID: **1911594-001bmsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **SL-1-GW**	Batch ID: **R64537**	RunNo: **64537**
Prep Date:	Analysis Date: **11/15/2019**	SeqNo: **2210302** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	220	1.0	20.00	204.4	78.6	70	130	6.45	20	E
Toluene	18	1.0	20.00	0	89.4	70	130	7.33	20	
Chlorobenzene	18	1.0	20.00	0	90.4	70	130	7.01	20	
1,1-Dichloroethene	41	1.0	20.00	24.53	84.7	70	130	8.24	20	
Trichloroethene (TCE)	21	1.0	20.00	3.844	85.4	70	130	7.42	20	
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		99.7	70	130	0	0	
Surr: Toluene-d8	9.8		10.00		98.0	70	130	0	0	

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1911594** RcptNo: **1**

Received By: **Leah Baca** **11/13/2019 1:15:00 PM** Leah Baca

Completed By: **Leah Baca** **11/13/2019 2:24:57 PM** Leah Baca

Reviewed By: DAD 11/13/19

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 ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

of preserved bottles checked for pH: 2,4 (<2 or >12 unless noted)

Adjusted? no

Checked by: YB 11/13/19

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	9.6	Good	Yes			
2	1.0	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: Remarks

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. 1911594	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-12-19	0800	Water	SL-1-GW	40ml voa - 5	· HCl	-001			X					X								
				250 ml amber - 1	· Neat				X													
				1 liter amber - 3	· Neat										X							
				250 ml plastic - 1	· HNO_3											X						
				125 ml plastic - 1	· HNO_3											X						
				50 ml plastic -1	· $(NH_4)2SO_4$												X					
				125 ml plastic - 1	· H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	· NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	· H_2SO_4																X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-13-19	0800				
Date:	Time:	Relinquished by:	Received by: Courier	Date: 11/13/19	Time: 1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

9.9 - CF 0.3 = 9.6

1.3 = 1.0

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

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. 1911594	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-12-19	0925	Water	SL-2-GW	40ml voa - 5	HCl	-002			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date	Time	Relinquished by:	Received by:	Date	Time
11-13-19	0700				
Date:	Time:	Relinquished by:	Received by:	Date	Time
			Leah Ba	11/13/19	1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

9.9 - CF 0.3 = 9.6

1.3 = 1.0

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

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. 1911594	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-12-19	1110	Water	SL-3-GW	40ml voa - 5	HCl	-003			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-13-19	0700				
Date:	Time:	Relinquished by:	Received by: Leah Baca	Date: 11/13/19	Time: 1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

9.9 - CF 0.3 = 9.6

1.3 = 1.0

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

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. 1915941	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - [redacted]	8270 - [redacted]	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-12-19	12:10	Water	SL-4-GW	40ml voa - 5	HCl	-004			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-13-19	0700				
Date:	Time:	Relinquished by:	Received by:	Date	Time
			Leah Baca	11/13/19	1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

9.9 - CF 0.3 = 9.6

1.3 = 1.0

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☐ Yes ☐ No

Sample Temperature:

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. 1911594	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNY LIST	8270 - SKINNY LIST	Metals - Total & Dissolved	Chromium VI	Anions	Cyanide	BOD	COD	Air Bubbles (Y or N)
11-12-19	12:30	Water	EB01	40ml voa - 5	HCl	-005			X					X								
				250 ml amber - 1	Neat				X													
				1 liter amber -	Neat										X							
				250 ml plastic - 1	HNO_3											X						
				125 ml plastic - 1	HNO_3											X						
				50 ml plastic -1	$(NH_4)2SO_4$												X					
				125 ml plastic - 1	H_2SO_4													X				
				125 ml plastic - 1	Neat													X				
				500 ml plastic - 1	NaOH														X			
				1 liter plastic - 1	Neat															X		
				500 ml plastic - 1	H_2SO_4																X	

Date	Time	Relinquished by:	Received by:	Date	Time
11-13-19	0700				
			Leah Baca	11/13	1315

Remarks: See attached sheet for Analytical Methods and Target Analytes.

9.9 - CF 0.3 = 9.6

1.3 = 1.0

Chain-of-Custody Record

Client: Marathon Petroleum Company LP
Gallup Refinery
Mailing Address: 92 Giant Crossing Rd.
Gallup, NM 87301
Phone #: 505-726-9745
email or Fax#: Bmoore1@marathonpetroleum.com
QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☒ EDD (Type) Excel

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name: Sanitary Sewer Lagoon
Project #:
Project Manager: Brian Moore
Sampler: Tracy Payne 919-561-7055
On Ice: ☒ Yes ☐ No
Sample Temperature:

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1911594	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
11-12-19	—	Water	Trip Blank	40ml Voa-3	HCl	-006										X		
11-12-19	—	Water	Trip Blank	40ml Voa-3	HCl	-007										X		

Date: 11-13-19 Time: 0700 Relinquished by:
Received by: Date Time
Date: Time: Relinquished by:
Received by: Leah Baca Date 11/13/19 Time 1315

Remarks:
9.9 - of 0.3 = 9.6
1.3 = 1.0

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.

Sanitary Sewer Lagoon – Groundwater, Surface Water, and Equipment Blank Analytical Requirements

- SW-846 Method 8260 for [redacted] volatile organic compounds;
- SW-846 Method 8270 for [redacted] semi-volatile organic compounds; and
- SW-846 Method 8015B gasoline range (C5-C10), diesel range (>C10-C28), and motor oil range (>C28-C36) organics.

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Chromium VI	SW-846 method 3060A
Cobalt	SW-846 method 6010/6020
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020
Iron	SW-846 method 6010/6020
Manganese	SW-846 method 6010/6020
Chloride	EPA Method 300.0
Fluoride	EPA Method 300.0
Nitrate	EPA Method 300.0
Nitrite	EPA Method 300.0
Sulfate	EPA Method 300.0
BOD	SM5210B
COD	EPA Method 410.4
[redacted]	[redacted]
[redacted]	[redacted]

Semivolatiles Limits * Report only these compounds. MDL must be met.
Dibenz(a,h)anthracene will be analzyed by Hall by Method 8310

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_ key	EPA Screening Levels.Tap Water	EPA TapW_ key	MCL	MDL	Analytical Method
1,2,4-Trichlorobenzene	-	1.15E+01	c	1.20E+00	c	**70**	4.04	8270
1,2-Dichlorobenzene	**600**	3.70E+02	n	3.00E+02	n	600	4.77	8270
1,3-Dichlorobenzene	-	-	-	-	-	-	5.27	8270
1,4-Dichlorobenzene	**75**	4.82E+00	c	4.80E-01	c	75	4.42	8270
1,4-Dioxane	-	**4.59E+00**	c	4.60E-01	c	-	2.00	8270/8270SIM
1-Methylnaphthalene	-	**1.14E+01**	c	1.10E+00	c	-	3.07	8270
2,4,5-Trichlorophenol	-	**1.17E+03**	n	1.20E+03	n	-	2.97	8270
2,4,6-Trichlorophenol	-	**1.19E+01**	n	4.10E+00	c**	-	2.33	8270
2,4-Dichlorophenol	-	**4.53E+01**	n	4.60E+01	n	-	2.92	8270
2,4-Dimethylphenol	-	**3.54E+02**	n	3.60E+02	n	-	2.97	8270
2,4-Dinitrophenol	-	**3.87E+01**	n	3.90E+01	n	-	2.59	8270
2,4-Dinitrotoluene	-	**2.37E+00**	c	2.40E-01	c	-	2.00	8270
2,6-Dinitrotoluene	-	**4.85E-01**	n	4.90E-02	c	-	0.20	8270
2-Chloronaphthalene	-	**7.33E+02**	n	7.50E+02	n	-	3.07	8270
2-Chlorophenol	-	**9.10E+01**	n	9.10E+01	n	-	2.69	8270
2-Methylnaphthalene	-	**3.51E+01**	n	3.60E+01	n	-	3.02	8270
2-Methylphenol	-	-	-	**9.30E+02**	n	-	2.86	8270
2-Nitroaniline	-	-	-	**1.90E+02**	n	-	3.17	8270
2-Nitrophenol	-	-	-	-	-	-	2.97	8270
3,3´-Dichlorobenzidine	-	**1.25E+00**	c	1.30E-01	c	-	1.00	8270
3+4-Methylphenol	-	-	-	**9.30E+02**	n	-	3.58	8270
3-Nitroaniline	-	-	-	-	-	-	3.24	8270
4,6-Dinitro-2-methylphenol	-	**1.52E+00**	n	-	-	-	1.00	8270
4-Bromophenyl phenyl ether	-	-	-	-	-	-	3.00	8270
4-Chloro-3-methylphenol	-	-	-	-	-	-	3.41	8270
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	2.44	8270
4-Nitroaniline	-	-	-	**3.80E+00**	c*	-	2.69	8270
4-Nitrophenol	-	-	-	-	-	-	7.57	8270
Acenaphthene	-	**5.35E+02**	n	5.30E+02	n	-	2.96	8270
Acenaphthylene	-	-	-	-	-	-	2.40	8270
Aniline	-	-	-	**1.30E+01**	c*	-	3.58	8270
Anthracene	-	**1.72E+03**	n	1.80E+03	n	-	2.66	8270
Benz(a)anthracene	-	**1.20E-01**	c	3.00E-02	c	-	0.10	8270
Benzo(a)pyrene	**0.2**	2.51E-01	c	2.50E-02	c	0.2	0.10	8270
Benzo(b)fluoranthene	-	**3.43E-01**	c	2.50E-01	c	-	0.10	8270
Benzo(g,h,i)perylene	-	-	-	-	-	-	2.23	8270
Benzo(k)fluoranthene	-	**3.43E+00**	c	2.50E+00	c	-	2.88	8270
Benzoic acid	-	-	-	**7.50E+04**	n	-	10.72	8270
Benzyl alcohol	-	-	-	**2.00E+03**	n	-	2.36	8270
Bis(2-chloroethoxy)methane	-	-	-	**5.90E+01**	n	-	2.60	8270

Bis(2-chloroisopropyl)ether	-	**9.81E+00**	c	-	-	-	3.86	8270
Bis(2-ethylhexyl)phthalate	-	5.56E+01	c	5.60E+00	c*	**6**	4.30	8270
Butyl benzyl phthalate	-	-	-	**1.60E+01**	c	-	3.33	8270
Carbazole	-	-	-	-	-	-	2.89	8270
Chrysene	-	**3.43E+01**	c	2.50E+01	c	-	2.79	8270
Dibenz(a,h)anthracene	-	**3.43E-02**	c	2.50E-02	c	-	0.03	8310
Dibenzofuran	-	-	-	**7.90E+00**	n	-	3.19	8270
Diethyl phthalate	-	**1.48E+04**	n	1.50E+04	n	-	2.87	8270
Dimethyl phthalate	-	**6.12E+02**	n	-	-	-	3.24	8270
Di-n-butyl phthalate	-	**8.85E+02**	n	-	-	-	2.71	8270
Di-n-octyl phthalate	-	-	-	-	-	-	3.52	8270
Fluoranthene	-	**8.02E+02**	n	8.00E+02	n	-	2.41	8270
Fluorene	-	**2.88E+02**	n	2.90E+02	n	-	2.89	8270
Hexachlorobenzene	-	9.76E-02	c	9.80E-03	c	**1**	1.00	8270
Hexachlorobutadiene	-	**1.39E+00**	c	1.40E-01	c*	-	1.00	8270
Hexachlorocyclopentadiene	-	4.11E-01	n	4.10E-01	n	**50**	3.58	8270
Hexachloroethane	-	**3.28E+00**	c	3.30E-01	c**	-	2.00	8270
Indeno(1,2,3-cd)pyrene	-	**3.43E-01**	c	2.50E-01	c	-	0.20	8270
Isophorone	-	**7.81E+02**	c	7.80E+01	c	-	3.05	8270
Naphthalene	-	**1.65E+00**	c	1.70E-01	c*	-	1.00	8270
Nitrobenzene	-	**1.40E+00**	c	1.40E-01	c	-	1.00	8270
N-Nitrosodiphenylamine	-	**1.22E+02**	c	1.20E+01	c	-	2.38	8270
Phenanthrene	-	**1.70E+02**	n	-	-	-	2.78	8270
Pentachlorophenol	**1**	4.13E-01	c	4.10E-02	c	1	1.00	8270
Phenol	-	**5.76E+03**	n	5.80E+03	n	-	8.04	8270
Pyrene	-	**1.17E+02**	n	1.20E+02	n	-	2.50	8270
Pyridine	-	-	-	**2.00E+01**	n	-	9.60	8270

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

December 10, 2019

Brian Moore

Marathon Gallup
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX:

RE: Sanitary Sewer Lagoon OrderNo.: 1911867

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 6 sample(s) on 11/19/2019 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

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

Case Narrative

WO#: **1911867**
Date: **12/10/2019**

CLIENT: Marathon Gallup
Project: Sanitary Sewer Lagoon

Analytical Notes Regarding BOD:
Samples with an "H" flag were analzyed/received past the holding time.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: MKTF-25
Project: Sanitary Sewer Lagoon
Collection Date: 11/18/2019 11:20:00 AM
Lab ID: 1911867-001
Matrix: AQUEOUS
Received Date: 11/19/2019 11:58:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.11	2.0		mg/L	20	11/19/2019 8:33:31 PM	R64630
Nitrogen, Nitrate (As N)	0.014	0.0061	0.10	J	mg/L	1	11/19/2019 8:21:11 PM	R64630
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	6.0	2.0	2.0		mg/L	1	11/25/2019 11:08:00 A	48903

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: MKTF-29
Project: Sanitary Sewer Lagoon
Collection Date: 11/18/2019 11:00:00 AM
Lab ID: 1911867-002
Matrix: AQUEOUS
Received Date: 11/19/2019 11:58:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.11	2.0		mg/L	20	11/19/2019 9:22:53 PM	R64630
Nitrogen, Nitrate (As N)	0.072	0.0061	0.10	J	mg/L	1	11/19/2019 9:10:33 PM	R64630
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	ND	2.0	2.0		mg/L	1	11/25/2019 11:08:00 A	48903

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: MKTF-30
Project: Sanitary Sewer Lagoon
Collection Date: 11/18/2019 8:40:00 AM
Lab ID: 1911867-003 **Matrix:** AQUEOUS **Received Date:** 11/19/2019 11:58:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.11	2.0		mg/L	20	11/19/2019 9:47:36 PM	R64630
Nitrogen, Nitrate (As N)	0.16	0.0061	0.10		mg/L	1	11/19/2019 9:35:14 PM	R64630
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	DO Depletion <2.0	2.0	2.0	H	mg/L	1	11/25/2019 11:08:00 A	48903

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: MKTF-31
Project: Sanitary Sewer Lagoon
Collection Date: 11/18/2019 10:00:00 AM
Lab ID: 1911867-004
Matrix: AQUEOUS
Received Date: 11/19/2019 11:58:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.11	2.0		mg/L	20	11/19/2019 10:12:18 P	R64630
Nitrogen, Nitrate (As N)	0.052	0.0061	0.10	J	mg/L	1	11/19/2019 9:59:57 PM	R64630
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	DO Depletion <2.0	2.0	2.0	H	mg/L	1	11/25/2019 11:08:00 A	48903

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: EB01
Project: Sanitary Sewer Lagoon
Collection Date: 11/18/2019 11:25:00 AM
Lab ID: 1911867-005
Matrix: AQUEOUS
Received Date: 11/19/2019 11:58:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	0.014	0.0054	0.10	J	mg/L	1	11/19/2019 10:24:39 P	R64630
Nitrogen, Nitrate (As N)	ND	0.0061	0.10		mg/L	1	11/19/2019 10:24:39 P	R64630
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	DO Depletion <2.0	2.0	2.0		mg/L	1	11/25/2019 11:08:00 A	48903

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: DUP
Project: Sanitary Sewer Lagoon
Collection Date: 11/18/2019
Lab ID: 1911867-006
Matrix: AQUEOUS
Received Date: 11/19/2019 11:58:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.11	2.0		mg/L	20	11/19/2019 11:51:05 P	R64630
Nitrogen, Nitrate (As N)	0.091	0.0061	0.10	J	mg/L	1	11/19/2019 11:38:45 P	R64630
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	DO Depletion <2.0	2.0	2.0		mg/L	1	11/25/2019 11:08:00 A	48903

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 05, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1165135

Samples Received: 11/26/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

1911867-001C MKTF-25 L1165135-01 5

1911867-002C MKTF-29 L1165135-02 6

1911867-003C MKTF-30 L1165135-03 7

1911867-004C MKTF-31 L1165135-04 8

1911867-005C EB01 L1165135-05 9

1911867-006C DUP L1165135-06 10

Qc: Quality Control Summary 11

Wet Chemistry by Method 410.4 11

Gl: Glossary of Terms 12

Al: Accreditations & Locations 13

Sc: Sample Chain of Custody 14

1911867-001C MKTF-25 L1165135-01 GW

Collected by | Collected date/time 11/18/19 11:20 | Received date/time 11/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1390315	1	12/04/19 11:00	12/04/19 15:48	BAM	Mt. Juliet, TN

1911867-002C MKTF-29 L1165135-02 GW

Collected by | Collected date/time 11/18/19 11:00 | Received date/time 11/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1390315	1	12/04/19 11:00	12/04/19 15:48	BAM	Mt. Juliet, TN

1911867-003C MKTF-30 L1165135-03 GW

Collected by | Collected date/time 11/18/19 08:40 | Received date/time 11/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1390315	1	12/04/19 11:00	12/04/19 15:48	BAM	Mt. Juliet, TN

1911867-004C MKTF-31 L1165135-04 GW

Collected by | Collected date/time 11/18/19 10:00 | Received date/time 11/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1390315	1	12/04/19 11:00	12/04/19 15:48	BAM	Mt. Juliet, TN

1911867-005C EB01 L1165135-05 GW

Collected by | Collected date/time 11/18/19 11:25 | Received date/time 11/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1390315	1	12/04/19 11:00	12/04/19 15:49	BAM	Mt. Juliet, TN

1911867-006C DUP L1165135-06 GW

Collected by | Collected date/time 11/18/19 00:00 | Received date/time 11/26/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1390315	1	12/04/19 11:00	12/04/19 15:49	BAM	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	70.9		3.00	10.0	1	12/04/2019 15:48	WG1390315

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	56.5		3.00	10.0	1	12/04/2019 15:48	WG1390315

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	23.5		3.00	10.0	1	12/04/2019 15:48	WG1390315

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	26.3		3.00	10.0	1	12/04/2019 15:48	WG1390315

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	U		3.00	10.0	1	12/04/2019 15:49	WG1390315

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	66.7		3.00	10.0	1	12/04/2019 15:49	WG1390315

Method Blank (MB)

(MB) R3479106-1 12/04/19 15:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U		3.00	10.0

L1165135-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1165135-01 12/04/19 15:48 • (DUP) R3479106-3 12/04/19 15:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	70.9	70.7	1	0.323		20

L1166155-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1166155-03 12/04/19 15:55 • (DUP) R3479106-6 12/04/19 15:55

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	220	219	1	0.187		20

Laboratory Control Sample (LCS)

(LCS) R3479106-2 12/04/19 15:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
COD	222	229	103	90.0-110	

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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

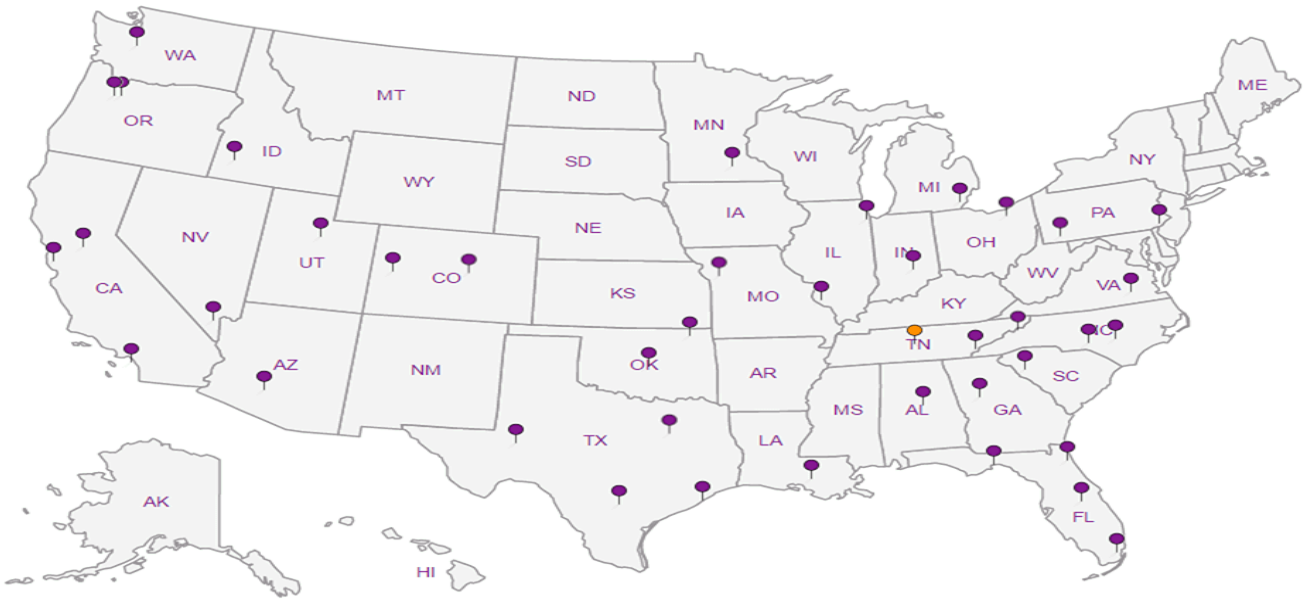
Third Party Federal Accreditations

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.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR: **ESC PACE**	COMPANY: **ESC PACE**		PHONE: **(800) 767-5859**	FAX: **(615) 758-5859**	
ADDRESS: **12065 Lebanon Rd**			ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP: **Mt. Juliet, TN 37122**					

L1165135 B050

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS	
1	1911867-001C	MKTF-25	500HDPEH2 SO4	Aqueous	11/18/2019 11:20:00 AM	1	COD**LV 4-MDL/J Flags	-01
2	1911867-002C	MKTF-29	500HDPEH2 SO4	Aqueous	11/18/2019 11:00:00 AM	1	COD**LV 4-MDL/J Flags	-02
3	1911867-003C	MKTF-30	500HDPEH2 SO4	Aqueous	11/18/2019 8:40:00 AM	1	COD**LV 4-MDL/J Flags	-03
4	1911867-004C	MKTF-31	500HDPEH2 SO4	Aqueous	11/18/2019 10:00:00 AM	1	COD**LV 4-MDL/J Flags	-04
5	1911867-005C	EB01	500HDPEH2 SO4	Aqueous	11/18/2019 11:25:00 AM	1	COD**LV 4-MDL/J Flags	-05
6	1911867-006C	DUP	500HDPEH2 SO4	Aqueous	11/18/2019	1	COD**LV 4-MDL/J Flags	-06

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

RAD SCREEN: <0.5 mR/hr

Relinquished By: LS	Date: 11/19/2019	Time: 1:50 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By: W Taylor	Date: 11/20/19	Time: 0830

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 0.2/1.2/0.3 °C Attempt to Cool ? Y
Comments: COC SR

Tracking # 4510 1669 2031

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	L1165135	
Cooler Received/Opened On: 11 / 20 /19 Temperature: 0.3		
Received By: Willie Taylor 0830		
Signature: Willie Taylor		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?		✓	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911867**

10-Dec-19

Client: Marathon Gallup

Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64630**	RunNo: **64630**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2213691** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64630**	RunNo: **64630**
Prep Date:	Analysis Date: **11/19/2019**	SeqNo: **2213692** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.1	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.9	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 Limit
S	% Recovery outside of range due to dilution or matrix		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911867**

10-Dec-19

Client: Marathon Gallup

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48903**	SampType: **MBLK**	TestCode: **SM5210B: BOD**
Client ID: **PBW**	Batch ID: **48903**	RunNo: **64761**
Prep Date: **11/20/2019**	Analysis Date: **11/25/2019**	SeqNo: **2219283** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.0								

Sample ID: **LCS-48903**	SampType: **LCS**	TestCode: **SM5210B: BOD**
Client ID: **LCSW**	Batch ID: **48903**	RunNo: **64761**
Prep Date: **11/20/2019**	Analysis Date: **11/25/2019**	SeqNo: **2219284** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	197	2.0	198.0	0	99.5	84.6	115.4			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1911867** RcptNo: 1

Received By: **Yazmine Garduno** **11/19/2019 11:58:00 AM** Yazmine Garduno

Completed By: **Leah Baca** **11/19/2019 1:37:49 PM** Leah Baca

Reviewed By: YG 11/19/19

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 ☐	
12. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
13. Is it clear what analyses were requested?	Yes ☑	No ☐	
14. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

of preserved bottles checked for pH: 12
(<2 or >12 unless noted)
Adjusted? NO
Checked by: DAD 11/19/19

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	1.6	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.7 - 0.1 = 1.6

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. LB IQ0 1911867	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
11.18.2019	11:20	Water	MKTF-25	125 ml plastic - 1	H_2SO_4	-001											X					
				125 ml plastic - 1	Neat												X					
				1 liter plastic - 1	Neat													X				
				500 ml plastic - 1	H_2SO_4														X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
11.19.2019	0700				
Date:	Time:	Relinquished by:	Received by:	Date	Time
			YM COOLER	11/19/19	1155

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: X Yes ☐ No

Sample Temperature: 1.7 - 01 = 1.6

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. 1911867	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
11-18-2019	11:00	Water	MKTF-29	125 ml plastic - 1	H_2SO_4	-002											X					
↓	↓	↓	↓	125 ml plastic - 1	Neat												X					
				1 liter plastic - 1	Neat													X				
				500 ml plastic - 1	H_2SO_4														X			

Date	Time	Relinquished by:	Received by:	Date	Time
11-19-2019	0700				
Date:	Time:	Relinquished by:	Received by: courier	Date: 11/19/19	Time: 1155

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: X ☐ Yes ☐ No

Sample Temperature: 1.7 - 0.1 = 1.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1911867	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
11-18-2019	08:40	Water	MKTF-30	125 ml plastic - 1	H_2SO_4	-003											X					
↓	↓	↓	↓	125 ml plastic - 1	Neat	↓											X					
↓	↓	↓	↓	1 liter plastic - 1	Neat	↓												X				
↓	↓	↓	↓	500 ml plastic - 1	H_2SO_4	↓													X			

Date	Time	Relinquished by:	Received by:	Date	Time
1-19-2019	0700				
			Ym Turner	11/19/19	1155

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other _____

☒ EDD (Type) **EXCEL**

Turn-Around Time:

☒ Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.7-0.1=1.6

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
11-18-2019	10:00	Water	MKTF-31	125 ml plastic - 1	H_2SO_4	1911867-004											X					
				125 ml plastic - 1	Neat												X					
				1 liter plastic - 1	Neat													X				
				500 ml plastic - 1	H_2SO_4														X			

Date	Time	Relinquished by:	Received by:	Date	Time
11-19-2019	0700				
			Courier	11/19/19	1155

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.7-0.1=1.6

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. 1911867	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
1-18-2019	11:25	Water	EB01	125 ml plastic - 1	H_2SO_4	-005											X					
↓	↓	↓	↓	125 ml plastic - 1	Neat	↓											X					
				1 liter plastic - 1	Neat													X				
				500 ml plastic - 1	H_2SO_4														X			

Date	Time	Relinquished by:	Received by:	Date	Time
1-19-2019	0700				
		Relinquished by:	Received by:	Date	Time
			[illegible]	1/19/19	1155

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: X ☐ Yes ☐ No Y6 11/19/19

Sample Temperature: 1.7 - 0.1 = 1.6

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. 1911867	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
11-18-2019	—	Water	DUP01	125 ml plastic - 1	H_2SO_4	-006											X					
↓	↓	↓	↓	125 ml plastic - 1	Neat	↓											X					
				1 liter plastic - 1	Neat													X				
				500 ml plastic - 1	H_2SO_4														X			

Date	Time	Relinquished by:	Received by:	Date	Time
11-19-2019	0700				
		Relinquished by:	Received by:	Date	Time
			yn cane	11/19/19	1155

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Sanitary Sewer Lagoon – Groundwater and Equipment Blank Analytical Requirements for at existing monitoring wells (MKTF-24, MKTF-25, MKTF-26, MKTF-29, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1)

Analyte	Analytical Method
Nitrate	EPA Method 300.0
Nitrite	EPA Method 300.0
BOD	SM5210B
COD	SM9223B
Total coliform	SM9223B
E. coli bacteria	SM9223B

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

December 04, 2019

Brian Moore

Marathon Gallup
92 Giant Crossing Rd
Gallup, NM 87301
TEL:
FAX

RE: Sanitary Sewer Lagoon OrderNo.: 1911960

Dear Brian Moore:

Hall Environmental Analysis Laboratory received 4 sample(s) on 11/20/2019 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.

Analytical Report
Lab Order **1911960**
Date Reported: **12/4/2019**

CLIENT: Marathon Gallup
Client Sample ID: OAPIS-1
Project: Sanitary Sewer Lagoon
Collection Date: 11/19/2019 9:10:00 AM
Lab ID: 1911960-001
Matrix: AQUEOUS
Received Date: 11/20/2019 11:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/20/2019 4:48:58 PM	R64672
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/20/2019 4:48:58 PM	R64672
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	5.7	2.0	2.0		mg/L	1	11/26/2019 12:14:00 P	48932

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: MKTF-24
Project: Sanitary Sewer Lagoon
Collection Date: 11/19/2019 9:45:00 AM
Lab ID: 1911960-002
Matrix: AQUEOUS
Received Date: 11/20/2019 11:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.027	0.50		mg/L	5	11/20/2019 5:14:43 PM	R64672
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/20/2019 5:14:43 PM	R64672
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	13	2.0	2.0	R	mg/L	1	11/26/2019 12:14:00 P	48932

NOTES:
R-RPD between dilutions >30%

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: MKTF-40
Project: Sanitary Sewer Lagoon
Collection Date: 11/19/2019 11:00:00 AM
Lab ID: 1911960-003
Matrix: AQUEOUS
Received Date: 11/20/2019 11:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.11	2.0		mg/L	20	11/20/2019 5:53:19 PM	R64672
Nitrogen, Nitrate (As N)	ND	0.030	0.50		mg/L	5	11/20/2019 5:40:27 PM	R64672
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	DO Depletion <2.0	2.0	2.0		mg/L	1	11/26/2019 12:14:00 P	48932

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Marathon Gallup
Client Sample ID: EB02
Project: Sanitary Sewer Lagoon
Collection Date: 11/19/2019 11:20:00 AM
Lab ID: 1911960-004
Matrix: AQUEOUS
Received Date: 11/20/2019 11:50:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: **CAS**	
Nitrogen, Nitrite (As N)	ND	0.0054	0.10		mg/L	1	11/20/2019 6:06:11 PM	R64672
Nitrogen, Nitrate (As N)	ND	0.0061	0.10		mg/L	1	11/20/2019 6:06:11 PM	R64672
SM5210B: BOD							Analyst: **AG**	
Biochemical Oxygen Demand	DO Depletion <2.0	2.0	2.0		mg/L	1	11/26/2019 12:14:00 P	48932

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

November 29, 2019

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1163653

Samples Received: 11/21/2019

Project Number:

Description:

Report To:

4901 Hawkins NE

Albuquerque, NM 87109

Entire Report Reviewed By: Daphne R Richards

Daphne Richards
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 Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



TABLE OF CONTENTS

Cp: Cover Page 1

Tc: Table of Contents 2

Ss: Sample Summary 3

Cn: Case Narrative 4

Sr: Sample Results 5

- 1911960-001C OAPIS-1 L1163653-01 5
- 1911960-002C MKTF-24 L1163653-02 6
- 1911960-003C MKTF-40 L1163653-03 7
- 1911960-004C EB02 L1163653-04 8

Qc: Quality Control Summary 9

- Wet Chemistry by Method 410.4 9

Gl: Glossary of Terms 10

Al: Accreditations & Locations 11

Sc: Sample Chain of Custody 12

1911960-001C OAPIS-1 L1163653-01 WW

Collected by | Collected date/time 11/19/19 09:10 | Received date/time 11/21/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1387950	1	11/27/19 15:00	11/27/19 18:59	BAM	Mt. Juliet, TN

1911960-002C MKTF-24 L1163653-02 WW

Collected by | Collected date/time 11/19/19 09:45 | Received date/time 11/21/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1387950	1	11/27/19 15:00	11/27/19 18:59	BAM	Mt. Juliet, TN

1911960-003C MKTF-40 L1163653-03 WW

Collected by | Collected date/time 11/19/19 11:00 | Received date/time 11/21/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1387950	1	11/27/19 15:00	11/27/19 18:59	BAM	Mt. Juliet, TN

1911960-004C EB02 L1163653-04 WW

Collected by | Collected date/time 11/19/19 11:20 | Received date/time 11/21/19 08:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 410.4	WG1387950	1	11/27/19 15:00	11/27/19 18:59	BAM	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.

Daphne R Richards

Daphne Richards
Project Manager

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	482		3.00	10.0	1	11/27/2019 18:59	WG1387950

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	60.8		3.00	10.0	1	11/27/2019 18:59	WG1387950

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	117		3.00	10.0	1	11/27/2019 18:59	WG1387950

Wet Chemistry by Method 410.4

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/l		mg/l	mg/l		date / time	
COD	U		3.00	10.0	1	11/27/2019 18:59	WG1387950

Method Blank (MB)

(MB) R3477123-1 11/27/19 18:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U		3.00	10.0

L1163492-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1163492-01 11/27/19 18:56 • (DUP) R3477123-3 11/27/19 18:56

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	45.8	45.1	1	1.62		20

L1164814-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1164814-03 11/27/19 19:00 • (DUP) R3477123-6 11/27/19 19:00

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
COD	162	161	1	0.223		20

Laboratory Control Sample (LCS)

(LCS) R3477123-2 11/27/19 18:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
COD	222	223	100	90.0-110	

L1163520-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1163520-07 11/27/19 18:58 • (MS) R3477123-4 11/27/19 18:58 • (MSD) R3477123-5 11/27/19 18:58

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 %
COD	400	ND	435	433	108	107	1	80.0-120			0.426	20

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.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
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

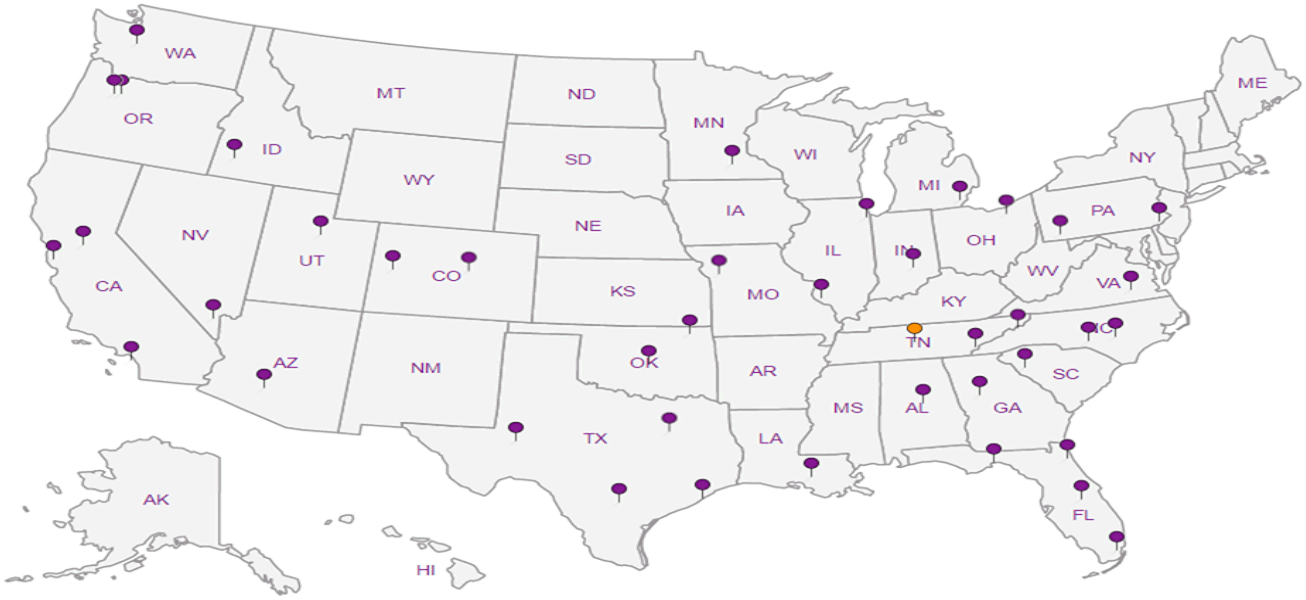
Third Party Federal Accreditations

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.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107
Website: www.hallenvironmental.com

SUB CONTRATOR:	**ESC PACE**	COMPANY: **ESC PACE**	PHONE: **(800) 767-5859**	FAX: **(615) 758-5859**	
ADDRESS:	**12065 Lebanon Rd**		ACCOUNT #:	EMAIL:	
CITY, STATE, ZIP:	**Mt. Juliet, TN 37122**				

C010

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	1911960-001C	OAPIS-1	500HDPEH2SO4	Aqueous	11/19/2019 9:10:00 AM	1	COD**LV 4-MDL/J Flags L1163653-01
2	1911960-002C	MKTF-24	500HDPEH2SO4	Aqueous	11/19/2019 9:45:00 AM	1	COD**LV 4-MDL/J Flags 02
3	1911960-003C	MKTF-40	500HDPEH2SO4	Aqueous	11/19/2019 11:00:00 AM	1	COD**LV 4-MDL/J Flags 03
4	1911960-004C	EB02	500HDPEH2SO4	Aqueous	11/19/2019 11:20:00 AM	1	COD**LV 4-MDL/J Flags 04

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

4510 1669 2010 No TB RAD SCREEN: <0.5 mR/hr 4 total

Relinquished By: LB	Date: 11/20/2019	Time: 1:53 PM	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	11/21/19	Time: 8:30

TAT: Standard ☐ RUSH Next BD ☐ 2nd BD ☐ 3rd BD ☐

REPORT TRANSMITTAL DESIRED:
☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE

FOR LAB USE ONLY
Temp of samples 1.0 / 2.3 / 2.3 °C Attempt to Cool ? Y
Comments: Air COC SL

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client:	HALLENVANM	L1163653
Cooler Received/Opened On: 11/27/19 Temperature:		1.3
Received By:	MICHAEL PAPPAS	
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?		/	
Preservation Correct / Checked?		/	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911960**

04-Dec-19

Client: Marathon Gallup

Project: Sanitary Sewer Lagoon

Sample ID: **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R64672**	RunNo: **64672**
Prep Date:	Analysis Date: **11/20/2019**	SeqNo: **2215591** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R64672**	RunNo: **64672**
Prep Date:	Analysis Date: **11/20/2019**	SeqNo: **2215592** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	92.7	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.0	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1911960**

04-Dec-19

Client: Marathon Gallup

Project: Sanitary Sewer Lagoon

Sample ID: **MB-48932**	SampType: **MBLK**	TestCode: **SM5210B: BOD**
Client ID: **PBW**	Batch ID: **48932**	RunNo: **64790**
Prep Date: **11/21/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220545** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	ND	2.0								

Sample ID: **LCS-48932**	SampType: **LCS**	TestCode: **SM5210B: BOD**
Client ID: **LCSW**	Batch ID: **48932**	RunNo: **64790**
Prep Date: **11/21/2019**	Analysis Date: **11/26/2019**	SeqNo: **2220591** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Biochemical Oxygen Demand	225	2.0	198.0	0	114	84.6	115.4			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.
D	Sample Diluted Due to Matrix
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
PQL	Practical Quanitative Limit
S	% Recovery outside of range due to dilution or matrix
B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **MARATHON GALLUP** Work Order Number: **1911960** RcptNo: 1

Received By: **Yazmine Garduno** **11/20/2019 11:50:00 AM** Yazmine Garduno

Completed By: **Leah Baca** **11/20/2019 1:31:34 PM** Leah Baca

Reviewed By: LB 11/20/19

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? Client

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 preserved 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 ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

of preserved bottles checked for pH: 8
(<2 or >12 unless noted)
Adjusted? No
Checked by: DAD 11/20/19

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	1.0	Good	Yes			

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☑ Yes ☐ No

Sample Temperature: 1.4 - 0.4 = 1.0

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
						1911960																
11.19.2019	09:10	Water	OAPIS-1	125 ml plastic - 1	H_2SO_4	-001											X					
↓	↓	↓	↓	125 ml plastic - 1	Neat	↓											X					
↓	↓	↓	↓	1 liter plastic - 1	Neat	↓												X				
↓	↓	↓	↓	500 ml plastic - 1	H_2SO_4	↓													X			

Date: 11.20.2019 Time: 0720 Relinquished by: [signature]

Received by: _____ Date _____ Time _____

Date: _____ Time: _____ Relinquished by: _____

Received by: [signature] Courier Date 11/20/19 Time 1150

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: X ☐ Yes ☐ No

Sample Temperature: 1.4-0.4=1.0

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. 1911960	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
11.19.2019	09:45	Water	MKTF-24	125 ml plastic - 1	H_2SO_4	-002											X					
↓	↓	↓	↓	125 ml plastic - 1	Neat	↓											X					
				1 liter plastic - 1	Neat													X				
				500 ml plastic - 1	H_2SO_4														X			

Date	Time	Relinquished by:	Received by:	Date	Time
11.20.2019	0720				
			VA Courier	11/20/19	1150

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: X ☐ Yes ☐ No

Sample Temperature: 1.4 - 0.4 = 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
11-19-2019	11:00	Water	MKTF-40	125 ml plastic - 1	H_2SO_4	1911960 -003
↓	↓	↓	↓	125 ml plastic - 1	Neat	↓
				1 liter plastic - 1	Neat	
				500 ml plastic - 1	H_2SO_4	

Analysis Request

BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
										X					
										X					
											X				
												X			

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-20-2019	0720				
Date:	Time:	Relinquished by:	Received by:	Date	Time
			Courier	11/20/19	1150

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: **Marathon Petroleum Company LP**

Gallup Refinery

Mailing Address: **92 Giant Crossing Road**

Gallup, NM 87301

Phone #: **505-726-9745**

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) **EXCEL**

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: **Sanitary Sewer Lagoon**

Project #:

Project Manager: **Brian Moore**

Sampler: **Tracy Payne - 919-561-7055**

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.4-0.4=1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1911960
11-19-2019	11:20	Water	EB02	125 ml plastic - 1	H_2SO_4	-004
↓	↓	↓	↓	125 ml plastic - 1	Neat	↓
				1 liter plastic - 1	Neat	
				500 ml plastic - 1	H_2SO_4	

Analysis Request

BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	8260B - SKINNER LIST	8270 - SKINNER LIST	Metals - Total & Dissolved	Anions	BOD	COD			Air Bubbles (Y or N)
										X					
										X					
											X				
												X			

Date	Time	Relinquished by:	Received by:	Date	Time
11-20-2019	0720				
			COURIER	11/20/19	1150

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Sanitary Sewer Lagoon – Groundwater and Equipment Blank Analytical Requirements for at existing monitoring wells (MKTF-24, MKTF-25, ~~MKTF-26~~, MKTF-29, MKTF-30, MKTF-31, MKTF-40, and OAPIS-1)

Analyte	Analytical Method
Nitrate	EPA Method 300.0
Nitrite	EPA Method 300.0
BOD	SM5210B
COD	SM9223B
~~Total coliform~~	~~SM9223B~~
~~E. coli bacteria~~	~~SM9223B~~

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9745

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 919-561-7055

On Ice: ☐ Yes ☐ No

Sample Temperature:

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
11.19.2019		Water	MKTF-24	150 ml - plastic - 1	Neat														X	X		
↓		↓	MKTF-40	↓	↓																	
			OAPIS 1																			
↓		↓	EB02	↓	↓																	

Date:	Time:	Relinquished by:	Received by:	Date	Time
11.19.19	1255			11/19/19	12:55
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9745

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 919-561-7055

On Ice: ☐ Yes ☐ No

Sample Temperature:

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.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
11.19.2019		Water	MKTF-24	150 ml - plastic - 1	Neat														X	X		
↓		↓	MKTF-40	↓	↓																	
			OAPIS 1																			
↓		↓	EB02	↓	↓																	

Date:	Time:	Relinquished by:	Received by:	Date	Time
11.19.19	1255			11/19/19	12:55
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# EB02

Water Supply System Name: Marathon Petroleum Co. LP-Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes (No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11.19.2019	Time Collected: 11:20		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP___	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Ross	Sampler/ Operator ID# NM _____	Phone Number: 512-733-4690	
Relinquished by (signature):		Date: 11-19-2019	Time: 12:55
Received by name: Danny Perry	Signature:	Date: 11/19/19	Time: 12:55
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/19/19	Time: 1:03	Volume Assayed: 100 ml	
Finish	Date: 11/20/19	Time: 1:10	TC (P/A) A	EC (P/A) A

First Analyst: _____ Date: 11/20/19 Time: 1:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# MKTF-40

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery				
WSS Code No. (5 digits) NM35		Chlorine Yes/(No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-19-2019	Time Collected: 11:00			

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM_____	Date: 11-19-2019	Time: 1255
Received by name: Danny Pena	Signature: Danny Pena	Date: 11/19/19	Time: 12:55
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: Yes/ No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/19/19	Time: 1:03	Volume Assayed: 100 ml	
Finish	Date: 11/20/19	Time: 1:10	TC (P/A) A	EC (P/A) A

First Analyst: Danny Pena Date: 11/20/19 Time: 1:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# DAPIS-1

Water Supply System Name: Marathon Petroleum Co. LP-Gallup Refinery				
WSS Code No. (5 digits) NM35		Chlorine Yes/No	Free: ___ mg/l	Total: ___ mg/l
Date Collected: 11.19.2019	Time Collected: 09:10			

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Ros	Sampler/ Operator JD# NM _____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11.19.2019	Time: 1255
Received by name: Doug Patton	Signature:	Date: 11/19/19	Time: 12:55
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/19/19	Time: 1:03	Volume Assayed: 100 ml	
Finish	Date: 11/20/19	Time: 1:10	TC (P/A) A	EC (P/A) A

First Analyst: _____ Date: 11/20/19 Time: 1:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# MKTF-24

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery				
WSS Code No. (5 digits) NM35		Chlorine Yes (No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-19-2019	Time Collected: 09:45			

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS		pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:				
Collected By (print): James Reis		Sampler/ Operator ID# NM _____	Phone Number: 512-733-4680	
Relinquished by (signature):			Date: 11.19.2019	Time: 12:55
Received by name: Danny Porras	Signature:		Date: 11/19/19	Time: 12:55
Relinquished by name:	Signature:		Date:	Time:
Received by name:	Signature:		Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/19/19	Time: 1:03	Volume Assayed: 100 ml	
Finish	Date: 11/20/19	Time: 1:10	TC (P/A) A	EC (P/A) A

First Analyst: Danny Porras Date: 11/20/19 Time: 1:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# MKTF 25

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes/No	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-18-2019	Time Collected: 11:20		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP _____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP _____ 1
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM _____	Date: 11-18-2019	Time: 1425
Received by name: Brady Pooley	Signature:	Date: 11/18/19	Time: 2:25
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/18/19	Time: 2:35	Volume Assayed: 100 ml	
Finish	Date: 11/19/19	Time: 2:46	TC (P/A) A	EC (P/A) A

First Analyst: _____ Date: 11/19/19 Time: 2:46

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# MKTF-29

Water Supply System Name: Marathon Petroleum Co. LP-Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes/(No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11.18.2019	Time Collected: 11:00		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM _____	Date: 11.18.2019	Time: 14:25
Received by name: Danny Porter	Signature:	Date: 11/18/19	Time: 2:25
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/19/19	Time: 2:35	Volume Assayed: 100 ml	
Finish	Date: 11/19/19	Time: 2:46	TC (P/A) A	EC (P/A) A

First Analyst: Danny Porter Date: 11/19/19 Time: 2:46

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# MK TF-30

Water Supply System Name: Marathon Petroleum Co. LP- Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes (No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-18-2019	Time Collected: 0840		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP___	Location:	
	Original Lab Sample ID# ___		
3. GW Triggered Source	Source Facility ID# ___	Source Facility Name:	
	Original Lab Sample ID# ___	Sample Point ID# SP___ 1	
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# ___	Source Facility Name:	
	Triggered Source Lab Sample ID# ___	Sample Point ID# SP___ 1	
5. (Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID# NM___	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11.18.2019	Time: 14:25
Received by name: Danny Posley	Signature: Danny Posley	Date: 11/18/19	Time: 2:35
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/18/19	Time: 2:35	Volume Assayed: 100 ml	
Finish	Date: 11/19/19	Time: 2:46	TC (P/A) A	EC (P/A) A

First Analyst: Danny Posley Date: 11/19/19 Time: 2:46

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# MKTF -31

Water Supply System Name: Marathon Petroleum Co. LP- Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes/(NO)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11.18.2019	Time Collected: 10:00		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Ross	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM _____	Date: 11.18.2019	Time: 1425
Received by name: Danny Arellano	Signature:	Date: 11/18/19	Time: 2:25
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/18/19	Time: 2:35	Volume Assayed: 100 ml	
Finish	Date: 11/19/19	Time: 2:46	TC (P/A) A	EC (P/A) A

First Analyst: Danny Arellano Date: 11/19/19 Time: 2:46

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# EB01

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes/No	Free: ___mg/l	Total: ___mg/l
Date Collected: 11.18.2019	Time Collected: 11:25		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Ros	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM _____	Date: 11.18.2019	Time: 14:25
Received by name: Danny Portillo	Signature:	Date: 11/18/19	Time: 2:35
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: Yes/No	Intact: Yes/No
Preservative: Ice Yes/No	Comments:		

Test			Test Results	
Start	Date: 11/18/19	Time: 2:35	Volume Assayed: 100 ml	
Finish	Date: 11/19/19	Time: 2:46	TC (P/A) A	EC (P/A) A

First Analyst: Danny Portillo Date: 11/19/19 Time: 2:46

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# DUP01

Water Supply System Name: Marathon Petroleum Co. LP-Gallup Refinery				
WSS Code No. (5 digits) NM35		Chlorine Yes/No	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-18-2019	Time Collected: —			

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM _____	Date: 11-18-2019	Time: 14:25
Received by name:	Signature:	Date: 11/19/19	Time: 2:25
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: Yes/No	Intact: Yes/No
Preservative: Ice Yes/No	Comments:		

Test			Test Results	
Start	Date: 11/18/19	Time: 2:35	Volume Assayed: 100 ml	
Finish	Date: 11/19/19	Time: 2:46	TC (P/A) A	EC (P/A) A

First Analyst: _____ Date: 11/19/19 Time: 2:46

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-1-GW

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery				
WSS Code No. (5 digits) NM35		Chlorine Yes/No	Free: ___ mg/l	Total: ___ mg/l
Date Collected: 11-12-2019	Time Collected: 0800			

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/Operator ID# NM_____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-12-2019	Time: 13:45
Received by name: Danny Pasion	Signature:	Date: 11/12/19	Time: 13:45
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes)/ No	Intact: (Yes)/ No
Preservative: Ice (Yes)/ No	Comments:		

Test			Test Results	
Start	Date: 11/12/19	Time: 2:00	Volume Assayed: 100 ml	
Finish	Date: 11/13/19	Time: 2:10	TC (P/A) P	EC (P/A) A

First Analyst: _____ Date: 11/13/19 Time: 2:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-2-GW

Water Supply System Name: Marathon Petroleum Co. LP- Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes (No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-12-2019	Time Collected: 0925		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP _____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP _____ 1
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Rios	Sampler/ Operator)ID# NM _____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-12-2019	Time: 13:45
Received by name: Danny Portillo	Signature:	Date: 11/12/19	Time: 1:45
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) / No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/12/19	Time: 2:00	Volume Assayed: 100 ml	
Finish	Date: 11/13/19	Time: 2:10	TC (P/A) P	EC (P/A) A

First Analyst: Danny Portillo Date: 11/13/19 Time: 2:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-3-GW

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes (No)	Free: ___ mg/l	Total: ___ mg/l
Date Collected: 11-12-2019	Time Collected: 1110		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____	Sample Point ID# SP_____ 1	
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____	Sample Point ID# SP_____ 1	
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID# NM _____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-12-2019	Time: 13:45
Received by name: Danny Portillo	Signature:	Date: 11/12/19	Time: 1:45
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/12/19	Time: 2:00	Volume Assayed: 100 ml	
Finish	Date: 11/13/19	Time: 2:10	TC (P/A) P	EC (P/A) A

First Analyst: _____ Date: 11/13/19 Time: 2:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-4-GW

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes/No	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-12-2019	Time Collected: 12:10		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID# NM _____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-12-2019	Time: 13:45
Received by name: Danny Pruitt	Signature: Danny Pruitt	Date: 11/12/19	Time: 1:45
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals (Yes)/ No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/12/19	Time: 2:00	Volume Assayed: 100 ml	
Finish	Date: 11/13/19	Time: 2:10	TC (P/A) P	EC (P/A) A

First Analyst: Danny Pruitt Date: 11/13/19 Time: 2:10

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-5-GW

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes (No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-13-2019	Time Collected: 07:55		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____	Sample Point ID# SP_____1	
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____	Sample Point ID# SP_____1	
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID# NM_____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-13-2019	Time: 12:05
Received by name: Danny Gurley	Signature: Danny Gurley	Date: 11/13/19	Time: 12:05
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals (Yes) / No	Intact: (Yes) / No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/13/19	Time: 12:18	Volume Assayed: 100 ml	
Finish	Date: 11/14/19	Time: 12:26	TC (P/A) P	EC (P/A) A

First Analyst: Danny Gurley Date: 11/14/19 Time: 12:26

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-6-GW

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes/~~No~~	Free: ___ mg/l	Total: ___ mg/l
Date Collected: 11-13-2019	Time Collected: 08'55		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP _____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP _____ 1
5. (Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID# NM _____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-13-2019	Time: 1205
Received by name: Danny Portillo	Signature:	Date: 11/13/19	Time: 12:05
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals (Yes)/ No	Intact: (Yes)/No
Preservative: Ice (Yes)/ No	Comments:		

Test			Test Results	
Start	Date: 11/13/19	Time: 12:18	Volume Assayed: 100 ml	
Finish	Date: 11/14/19	Time: 12:26	TC (P/A) P	EC (P/A) A

First Analyst: [signature] Date: 11/14/19 Time: 12:26

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-7-GW

Water Supply System Name: Marathon Petroleum Co. LP- Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes (No)	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-13-2019	Time Collected: 0920		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP___	Location:	
	Original Lab Sample ID# ___		
3. GW Triggered Source	Source Facility ID# ___	Source Facility Name:	
	Original Lab Sample ID# ___	Sample Point ID# SP___ 1	
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# ___	Source Facility Name:	
	Triggered Source Lab Sample ID# ___	Sample Point ID# SP___ 1	
(5. Special)	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM ___	Date: 11-13-2019	Time: 1205
Received by name: Danny Portillo	Signature:	Date: 11/13/19	Time: 12:05
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) No	Comments:		

Test			Test Results	
Start	Date: 11/13/19	Time: 12:14	Volume Assayed: 100 ml	
Finish	Date: 11/14/19	Time: 12:26	TC (P/A) P	EC (P/A) A

First Analyst: Danny Portillo Date: 11/14/19 Time: 12:26

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# SL-8-GW

Water Supply System Name: Marathon Petroleum Co LP - Gallup Refinery			
WSS Code No. (5 digits) NM35 _____	Chlorine Yes/No	Free: ____mg/l	Total: ____mg/l
Date Collected: 11-13-2019	Time Collected: 10:00		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID#	Phone Number: 512-733-4680	
Relinquished by (signature):	NM _____	Date: 11-13-2019	Time: 1205
Received by name: Danny Portillo	Signature:	Date: 11/13/19	Time: 12:05
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: Yes/ No	Intact: Yes/ No
Preservative: Ice Yes/ No	Comments:		

Test			Test Results	
Start	Date: 11/13/19	Time: 12:18	Volume Assayed: 100 ml	
Finish	Date: 11/14/19	Time: 12:26	TC (P/A) P	EC (P/A) A

First Analyst: Danny Portillo Date: 11/14/19 Time: 12:26

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# DUP01

Water Supply System Name: Marathon Petroleum Co. LP-Gallup Refinery				
WSS Code No. (5 digits) NM35		Chlorine Yes/No	Free: mg/l	Total: mg/l
Date Collected: 11-13-2019	Time Collected:			

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID#		
3. GW Triggered Source	Source Facility ID#	Source Facility Name:	
	Original Lab Sample ID#		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID#	Source Facility Name:	
	Triggered Source Lab Sample ID#		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Reis	Sampler/ Operator ID# NM_____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-13-2019	Time: 1205
Received by name: Danny Portillo	Signature:	Date: 11/13/19	Time: 12:05
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: Yes No	Intact: Yes No
Preservative: Ice Yes No	Comments:		

Test			Test Results	
Start	Date: 11/13/19	Time: 12:18	Volume Assayed: 100 ml	
Finish	Date: 11/14/19	Time: 12:26	TC (P/A) P	EC (P/A) A

First Analyst: Danny Portillo Date: 11/14/19 Time: 12:26

Gallup Microbiology Lab 453 Rob Roy, Gallup, NM 87305 505-862-2001 Lab ID# NM0501

Test Method: SM 9223B Lab Sample ID# EB01

Water Supply System Name: Marathon Petroleum Co. LP - Gallup Refinery			
WSS Code No. (5 digits) NM35	Chlorine Yes/No	Free: ___mg/l	Total: ___mg/l
Date Collected: 11-12-2019	Time Collected: 12.30		

Please circle the "Type" of sample from one of the Five selections below and fill out the information for your selection (all shaded boxes must be filled out completely). Only one selection per sample submitted. All samples are considered "For Compliance" except for Special samples.

1. Routine	Sample Point ID: RT___	Location:	
2. Repeat	Sample Point ID: RP____	Location:	
	Original Lab Sample ID# _____		
3. GW Triggered Source	Source Facility ID# _____	Source Facility Name:	
	Original Lab Sample ID# _____		Sample Point ID# SP_____ 1
4. GW Repeat (only if GW triggered was ec+)	Source Facility ID# _____	Source Facility Name:	
	Triggered Source Lab Sample ID# _____		Sample Point ID# SP_____ 1
5. Special	Location: Sanitary Sewage Lagoon		

FIELD SAMPLE DATA & REMARKS	pH:	Conductivity (µS/cm)	Temp. (°C):
Comments:			
Collected By (print): James Ray	Sampler/ Operator ID# NM _____	Phone Number: 512-733-4680	
Relinquished by (signature):		Date: 11-12-2019	Time: 1345
Received by name:	Signature:	Date: 11/12/19	Time: 1:45
Relinquished by name:	Signature:	Date:	Time:
Received by name:	Signature:	Date:	Time:

SAMPLE RECEIPT CONDITION	Temp (°C):	Custody Seals: (Yes) No	Intact: (Yes) No
Preservative: Ice (Yes) / No	Comments:		

Test			Test Results	
Start	Date: 11/12/19	Time: 2:00	Volume Assayed: 100 ml	
Finish	Date: 11/13/19	Time: 2:10	TC (P/A) A	EC (P/A) A

First Analyst: _____ Date: 11/13/19 Time: 2:10

Chain-of-Custody Record

Client: Marathon Petroleum Company LP
Gallup Refinery
Mailing Address: 92 Giant Crossing Road
Gallup, NM 87301
Phone #: 505-726-9745
Email: Bmoore1@marathonpetroleum.com
QA/QC Package:
☐ Standard X Level 4 (Full Validation)
☐ Other
X EDD (Type) EXCEL

Turn-Around Time:
X Standard ☐ Rush
Project Name: Sanitary Sewer Lagoon
Project #:
Project Manager: Brian Moore
Sampler: Tracy Payne - 919-561-7055
On Ice: ☒ Yes ☐ No
Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
11-12-19	0800	Water	SL-1-GW	150 ml - plastic - 1	Neat														X	X		
↓	0925	↓	SL-2-GW	↓	↓														X	X		
↓	1110	↓	SL-3-GW	↓	↓														X	X		
↓	1210	↓	SL-4-GW	↓	↓														X	X		
	~~1215~~																					
11-12-19	12:30	Water	EB01	150 ml - plastic - 1	NEAT														X	X		

Date	Time	Relinquished by:	Received by:	Date	Time
11-12-19	13:40			11/12/19	1:45 pm
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

Chain-of-Custody Record

Client: Marathon Petroleum Company LP

Gallup Refinery

Mailing Address: 92 Giant Crossing Road

Gallup, NM 87301

Phone #: 505-726-9745

Email: Bmoore1@marathonpetroleum.com

QA/QC Package:

☐ Standard X Level 4 (Full Validation)

☐ Other _____

X EDD (Type) EXCEL

Turn-Around Time:

X Standard ☐ Rush _____

Project Name: Sanitary Sewer Lagoon

Project #:

Project Manager: Brian Moore

Sampler: Tracy Payne - 919-561-7055

On Ice: ☐ Yes ☐ No

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals and Cyanide	Total Coliform	E. Coli		Air Bubbles (Y or N)
11-13-19	0755	Water	SL-5-GW	150 ml - plastic - 1	Neat														X	X		
	0855		SL-6-GW																X	X		
	0920		SL-7-GW																X	X		
	1000		SL-8-GW									–							X	X		
	1035		EB02																X	X		
	–		DUP01																X	X		

Date:	Time:	Relinquished by:	Received by:	Date	Time
11-13-19				11/13/19	12:05
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: See attached sheet for Analytical Methods and Target Analytes.

SL-1 (5-6')

2019/10/28

SL-1 (6-8')

2019/10/28

SL-1 (8-10')

2019/10/28


STAPLES
Dry Erase
Board Eraser
2019/10/28
SL-1 (10-12')

SL-1 (12-14')

2019/10/28


2019/10/29
SL-2(5-6')

SL-2(6-8')

2019/10/29

SL-2(6-8')

2019/10/29

SL-2 (10-12')

2019/10/29

SL-2 (12-14')

2019/10/29


SL-2 (14-16')
2019/10/29

SL-3 (6-8')

2019/10/29

SL-3 (8-10')

2019/10/29

SL-3 (10-12')

2019/ 10/ 29

SL-3 (12-14)

2019/10/29

(,9-5) h-75

2019/10/30

(,8-9) H-75

2019/10/30

SL-4 (8 -10')

2019/10/30

SL-4 (10-12')

2019/10/30

SL-4 (12-14')

2019/10/30

SL-4 (14 -16')

2019/10/30

SL-5 (5-6')

2019/10/30

(,8-9) 5-75

2019/10/30

SL-5 (8-10')

2019/10/30

SL-5 (10-12')

2019/10/30

SL-5 (12-14')

2019/10/30

SL-6 (5-6')

2019/10/31

SL-6 (6-8')

2019/10/31

(91-8) 9-75

2019/10/31

SL-6 (10-12')

2019/10/31

SL-6 (12-14')

2019/10/31

SL-7 (5-6')

2019/11/04

SL-7 (6-8'-9")

2019/11/04

SL-7 (8-10′)

2019/11/04

SL-7 (10-12')

2019/11/04

SL-8(5-6')

2019/11/04

SL-8 (6-8')

2019/11/04

SL-8 (8 - 10')

2019/11/04

SL-8 (10-12')

2019/11/04

SL-8 (12-14')

2019/11/04